HERITAGE REMEDIATION/ENGINEERING, INC.

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031045034 - Cook
Roadway Express
LUST / Tech Reports

August 15, 1991

FILE COPY

Illinois Environmental Protection Agency
Division of Land Pollution Control
Leaking Underground Storage Tank Section
2200 Churchill Road, P.O. Box 19276
Springfield, Illinois 62794-9276

RE: **45 DAY REPORT**
Subsurface Investigation at a
Diesel Underground Storage Tank
Farm Roadway Express, Inc.
Chicago Heights, Illinois
IESDA No.: 911816
HR/E Job No.: 4063

Dear Sirs:

Heritage Remediation/Engineering, Inc., on behalf of Roadway Services, Inc., is pleased to submit two (2) copies of the 45 Day Report as partial fulfillment of the CARRR.

Should you have any questions, please feel free to contact the undersigned at your earliest convenience.

Sincerely,

HERITAGE REMEDIATION/ENGINEERING, INC.

G. Scott Mitchell
Project Geologist

US EPA RECORDS CENTER REGION 5
399042

cc: Mr. Grant Wilk
Roadway Services, Inc.

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COPY

SUBSURFACE INVESTIGATION AT A DIESEL UNDERGROUND STORAGE TANK FARM

ROADWAY EXPRESS, INC.
2000 LINCOLN HIGHWAY
(ROUTE 30 AND CALUMET EXPRESSWAY)
CHICAGO HEIGHTS, ILLINOIS

Prepared for:

Roadway Services, Inc
1077 Gorge Boulevard
Akron, Ohio 44309

Prepared by:

Heritage Remediation/Engineering, Inc.
Chicago Division
1319 Marquette Drive
Romeoville, Illinois 60441

August 15, 1991

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1.0 INTRODUCTION

On July 11, 1991, Heritage Remediation/Engineering, Inc., (HR/E), commenced the subsurface investigation at the Roadway Express Terminal, Chicago Heights, Illinois (Figure 1) in accordance with HR/E's Proposal for Subsurface Investigation, dated July 3, 1991. This investigation was in response to observations of diesel free product within monitoring well MW-1, located along the northern edge of a underground storage tank farm excavation. The objective of the investigation was to evaluate the extent and magnitude of diesel fuel contamination, if any, from the reported release.

The subsurface investigation activities included:

- advancement of fourteen (14) soil borings along the perimeter and close proximity of the excavation to evaluate the vertical and horizontal extent of contamination

- advancement of three (3) exploratory test borings within the excavation to evaluate presence/absence of contamination within the excavation backfill

- lithologic description and field screening of all collected soil samples for the presence/absence of volatile organics with a photoionization (PID) meter

- submittal of selected soil samples for volatile organic laboratory analysis

- preparing this report documenting the activities undertaken at the above referenced site.

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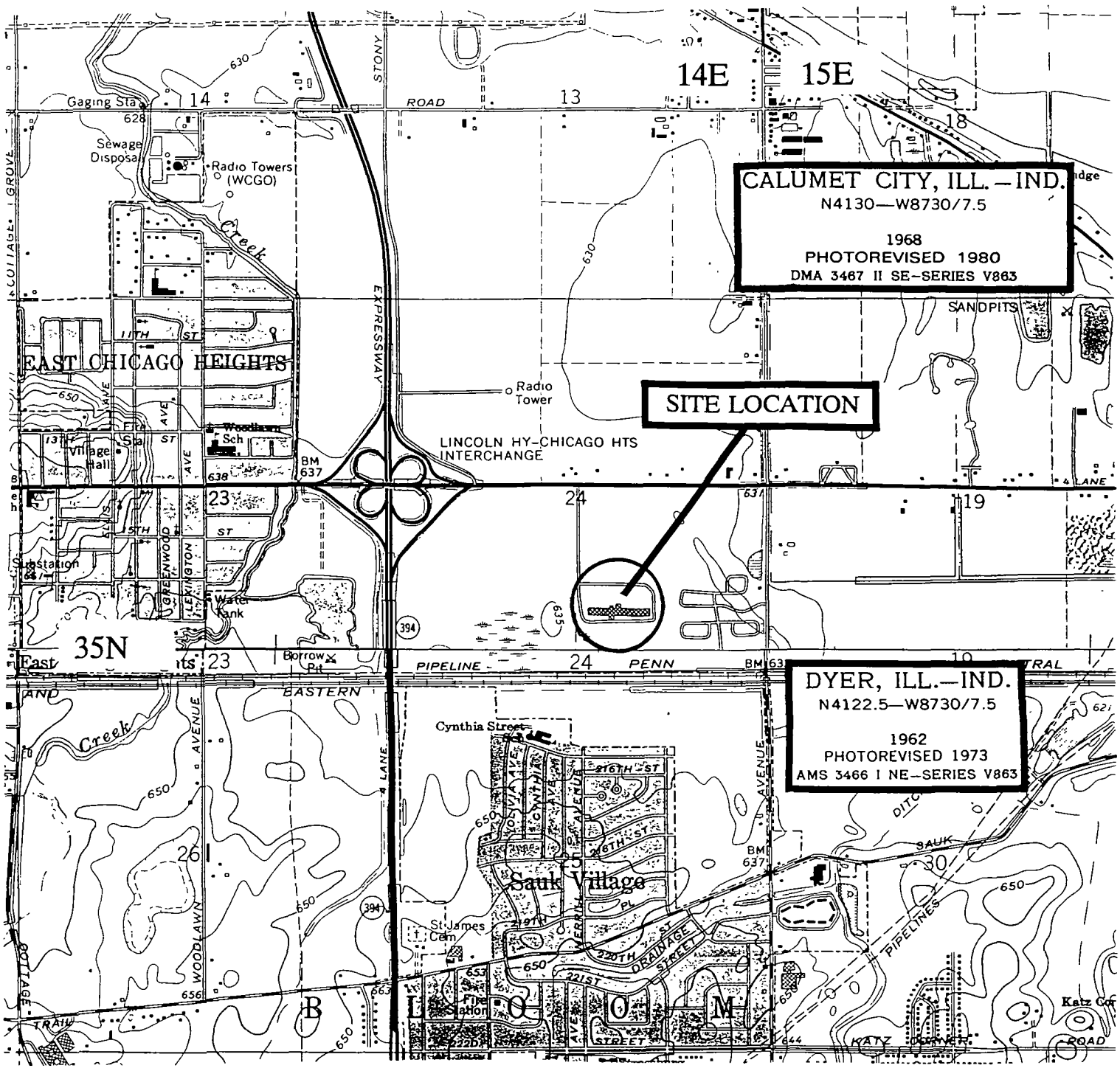

MN GN
½° 9 MILS 0°22' 7 MILS
UTM GRID AND 1980 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

ILLINOIS
QUADRANGLE LOCATION

HERITAGE REMEDIATION/ENGINEERING, INC.

SCALE: AS SHOWN	APPROVED BY	DRAWN BY GSM
DATE: 31 JULY 91		4063

TOPOGRAPHIC MAP

ROADWAY EXPRESS, INC
CHICAGO HEIGHTS, ILLINOIS

FIGURE 1

2.0 BACKGROUND

The underground storage tank farm is located approximately in the center of the southwest quadrant of the property. The tank farm consists of seven underground storage tanks, including the following: 5 - 20,000 gallon diesel tanks, 1 - 10,000 ethylene glycol tank, and 1 - 10,000 motor oil tank. The tanks were installed in October, 1984. In March, 1988, three monitoring wells (MW-1, MW-3, MW-4) were placed along the south, west, and north boundaries of the excavation to specifically monitor conditions within the excavation. Each monitoring well is inspected weekly for evidence of potential leaks within the system. No petroleum product was observed within the monitoring wells until July 3, 1991, during retrofit activities of the tank system. The retrofit included the installation of overfill protection devices and cut-off manifold valves at each tank. During these activities, it was determined the fill neck on Tank #1 (20,000 gallon diesel) was broken. A subsequent check of the monitoring wells indicated approximately 6 inches of free diesel and 6 inches of water in MW-1. The remaining monitoring wells exhibited no evidence of free product. ESDA was immediately notified of a release, and Roadway Express was assigned ESDA #911816 on July 3, 1991. Roadway temporarily discontinued service of the tank farm to conduct tank tightness testing of the system to ensure the suspected point source of the release had been identified and properly repaired. The results indicated no additional leaks within the UST's or associated piping.

3.0 SUMMARY OF SOIL AND GROUNDWATER INVESTIGATIONS

3.1 Subsurface Soil Investigation

On July 11, 1991 HR/E mobilized the personnel and equipment necessary to perform subsurface soil investigation. Drilling services were provided by Whitney & Associates, Inc, of Peoria, Illinois. Engineering oversight of the investigation was provided by Heritage Remediation/Engineering, Inc. Prior to the commencement of

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subsurface activities, all buried utility lines located within the immediate area of the tank farm were located.

Soil borings SB-1 through SB-14 were advanced to a maximum depth of 23.0 feet below surface grade (BSG) by a rotary type drill rig utilizing 2.25 inch I.D. hollow stem augers. The location of each soil boring is depicted in Figure 2. Soil samples were obtained with 1-3/8 inch I.D. by 2.0 foot long split-barrel samples, as drilling conditions permitted through the augers' hollow stems. The samplers were driven ahead of the lead auger to obtained representative soil samples. After recovery, the split-barrel sampler was opened and the soil sample physically examined, logged for lithologic characteristics, moisture content, presence of hydrocarbon odors and/or staining, and field screened utilizing a PID meter. Soil boring logs summarizing lithologic descriptions, observations of contamination, and PID meter field results are presented in Appendix I. A summary of the PID meter results is presented in Table 1. Selected soil samples were collected and submitted for laboratory analysis, utilizing the sampling procedures described in Section 4.0.

All drilling tools and hollow stem augers utilized during the subsurface investigation were decontaminated utilizing a high pressure cleaner prior to each individual boring location. Split-barrel soil samplers were decontaminated with a detergent wash followed by a clean water rinse prior to and between successive soil sampling intervals at each boring location.

The soil profile in close proximity to the tank farm area is as follows: from surface to approximately 7 feet below surface grade (BSG), the soil can be generally characterized as a gray clay/clay silt with no petroleum odor; from 7 to 12 feet BSG as brown clayey sand; from 12 to 23 feet (vertical extent of subsurface investigation) as continuous and discontinuous units of sands, silty sands, gray clays and clayey silts.

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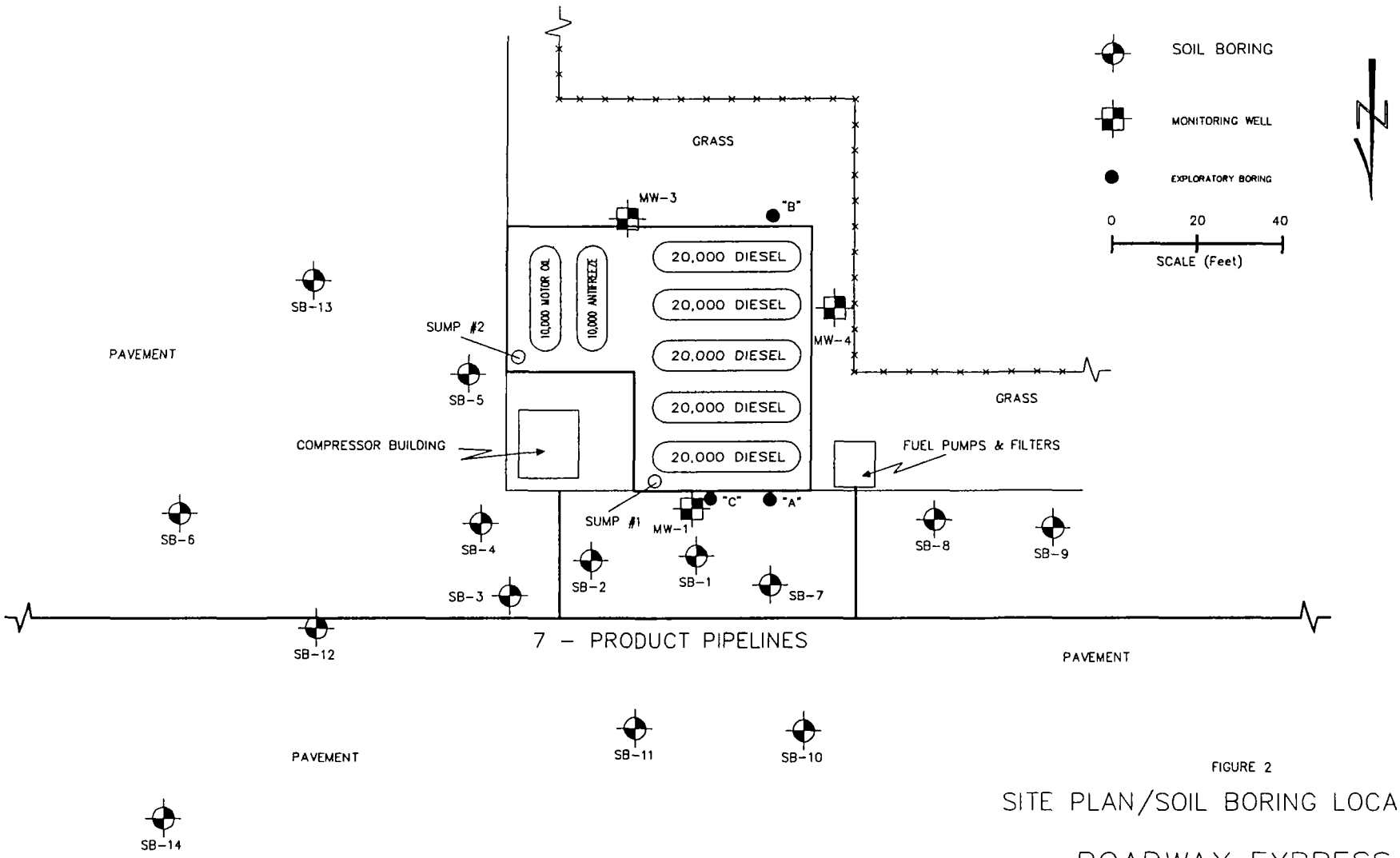

FIGURE 2

SITE PLAN/SOIL BORING LOCATIONS

ROADWAY EXPRESS

Chicago Heights, IL

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23 July 1991

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TABLE 1
ROADWAY EXPRESS, INC.
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, ILLINOIS

PID METER FIELD ANALYSIS RESULTS
SOIL SAMPLES (Soil Borings SB-1 through SB-14)

Soil Boring Sample I.D.	Sample Depth (ft.)	PID Meter Results (ppm)
SB - 1	0.0 - 3.0	------
	3.0 - 5.0	10.0
	5.0 - 7.0	4.4
	7.0 - 9.0	6.5
	9.0 - 11.0*	10.7
	11.0 - 13.0	852
	13.0 - 15.0	1012
	15.0 - 16.0	851
	16.0 - 17.0	565
	17.0 - 18.0	914
	18.0 - 19.0	------
	19.0 - 20.0	735
	20.0 - 21.0	13.6
	21.0 - 23.0	------
SB - 2	0.0 - 8.0	no PID samples
	8.0 - 10.0	4.4
	10.0 - 12.0	6.3
	12.0 - 14.0	691
	14.0 - 16.0	14.7
	16.0 - 17.0	294
	17.0 - 18.0	------
	18.0 - 20.0	10.8
	20.0 - 22.0	11.2

Background PID Meter Reading @ Ambient Air = 0 - 1 ppm Benzene
* = Soil Sample Submitted for Laboratory Analysis

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TABLE 1 (cont'd)
ROADWAY EXPRESS, INC.
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, ILLINOIS

PID METER FIELD ANALYSIS RESULTS
SOIL SAMPLES (Soil Borings SB-1 through SB-14)

Soil Boring Sample I.D.	Sample Depth (ft.)	PID Meter Results (ppm)
SB - 3	0.0 - 10.0	no PID samples
	10.0 - 12.0	4.0
	12.0 - 14.0	703
	14.0 - 16.0	4.3
	16.0 - 17.0	4.9
	17.0 - 18.0	4.0
	18.0 - 20.0	2.9
	20.0 - 22.0	3.7
SB - 4	0.0 - 10.0	no PID samples
	10.0 - 12.0	3.4
	12.0 - 13.0	------
	13.0 - 14.0	311
	14.0 - 15.0	------
	15.0 - 16.0	877
	16.0 - 18.0	3.2
	18.0 - 20.0	1.3
	20.0 - 22.0	------
SB - 5	0.0 - 10.0	no PID samples
	10.0 - 12.0	0.8
	12.0 - 13.0	233
	13.0 - 14.0	577
	14.0 - 15.0	------
	15.0 - 16.0	704
	16.0 - 18.0	31.8
	18.0 - 19.0	566
	19.0 - 20.0	147
	20.0 - 22.0	142

Background PID Meter Reading @ Ambient Air = 0 - 1 ppm Benzene
* = Soil Sample Submitted for Laboratory Analysis

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TABLE 1 (cont'd)
ROADWAY EXPRESS, INC.
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, ILLINOIS

PID METER FIELD ANALYSIS RESULTS
SOIL SAMPLES (Soil Borings SB-1 through SB-14)

Soil Boring Sample I.D.	Sample Depth (ft.)	PID Meter Results (ppm)
SB - 6	0.0 - 8.0	no PID samples
	8.0 - 10.0	9.5
	10.0 - 12.0	14.5
	12.0 - 14.0	11.1
	14.0 - 16.0	18.4*
	16.0 - 18.0	20.1
	18.0 - 20.0	12.0
	20.0 - 22.0	16.1
SB - 7	0.0 - 8.0	no PID samples
	8.0 - 10.0	0.0
	10.0 - 12.0	0.0
	12.0 - 14.0	393
	14.0 - 15.0	579
	15.0 - 16.0	105
	16.0 - 17.0	222
	17.0 - 18.0	107
	18.0 - 20.0	3.4
	20.0 - 22.0	3.6
SB - 8	0.0 - 10.0	no PID samples
	10.0 - 12.0	27.9
	12.0 - 13.0	364
	13.0 - 14.0	505
	14.0 - 16.0	10.0
	16.0 - 18.0	12.2
	18.0 - 20.0	4.5
	20.0 - 22.0	4.2

Background PID Meter Reading @ Ambient Air = 0 - 1 ppm Benzene
* = Soil Sample Submitted for Laboratory Analysis

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TABLE 1 (cont'd)
ROADWAY EXPRESS, INC.
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, ILLINOIS

PID METER FIELD ANALYSIS RESULTS
SOIL SAMPLES (Soil Borings SB-1 through SB-14)

Soil Boring Sample I.D.	Sample Depth (ft.)	PID Meter Results (ppm)
SB - 9	0.0 - 8.0	no PID samples
	8.0 - 10.0	4.6
	10.0 - 12.0	2.8
	12.0 - 14.0	2.4*
	14.0 - 16.0	2.0
	16.0 - 18.0	2.3
SB - 10	0.0 - 8.0	no PID samples
	8.0 - 10.0	3.8
	10.0 - 12.0	2.5
	12.0 - 14.0	336
	14.0 - 16.0	3.6
	16.0 - 18.0	5.3
SB - 11	0.0 - 10.0	no PID samples
	10.0 - 12.0	1.9
	12.0 - 13.0	3.7
	13.0 - 14.0	405
	14.0 - 16.0	8.2
	16.0 - 18.0	------
SB - 12	0.0 - 10.0	no PID samples
	10.0 - 12.0	3.0
	12.0 - 13.0	306
	13.0 - 14.0	17.7
	14.0 - 16.0	10.7
	16.0 - 17.0	533
	17.0 - 18.0	43
	18.0 - 20.0	3.2
	20.0 - 22.0	7.3

Background PID Meter Reading @ Ambient Air = 0 - 1 ppm Benzene
* = Soil Sample Submitted for Laboratory Analysis

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TABLE 1 (cont'd)
ROADWAY EXPRESS, INC.
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, ILLINOIS

PID METER FIELD ANALYSIS RESULTS
SOIL SAMPLES (Soil Borings SB-1 through SB-14)

Soil Boring Sample I.D.	Sample Depth (ft.)	PID Meter Results (ppm)
SB - 13	0.0 - 10.0	no PID samples
	10.0 - 12.0	1.6
	12.0 - 13.0	-----
	13.0 - 14.0	1.8*
	14.0 - 16.0	1.3
	16.0 - 18.0	1.7
	18.0 - 20.0	1.9
	20.0 - 22.0	1.9
SB - 14	0.0 - 10.0	no PID samples
	10.0 - 12.0	0.0
	12.0 - 14.0	0.2
	14.0 - 16.0	0.5
	16.0 - 18.0	1.2*
	18.0 - 20.0	0.7

Background PID Meter Reading @ Ambient Air = 0 - 1 ppm Benzene
* = Soil Sample Submitted for Laboratory Analysis

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Three exploratory soil borings (A, B, and C) were advanced along the perimeter of the tank farm excavation to evaluate conditions within the backfill material. The location of the borings are presented in Figure 2. The exploratory borings were advanced to the floor of the excavation, approximately 15 feet BSG, and split spoon samples were collected to obtain a vertical profile the backfill material. Exploratory borings A, and B did not exhibit indications of petroleum contamination. Exploratory boring C was advanced in close proximity to monitoring well MW-1, where free diesel product was initially reported. Field observations of exploratory boring C revealed that from 13.0 to 15.0 feet BSG, the backfill material exhibits petroleum staining to include free diesel product at the deeper depth.

3.2 Survey of UST Tank Farm Monitoring Wells and Sumps

Field data was gathered on the previously installed monitoring wells and sumps located within and along the perimeter of the UST tank farm. The location of these tanks are presented in Figure 2. A summary of the data collected is summarized in Table 2.

Free diesel product was observed in monitoring well MW-1 and Sump #1, and water was observed in MW-3, all of which are located within the excavation backfill material. Monitoring well MW-4 was advanced beyond the excavation boundary, and contained 2.78 feet of water. Sump #2 was not installed deep enough to encounter water.

4.0 SOIL SAMPLING PROCEDURES

A photoionization detection meter (PID) was utilized to field screen collected grab soil samples during subsurface investigation activities to quantify the presence/absence of hydrocarbon contamination. A PID meter uses photoionization to detect the presence of

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TABLE 2
ROADWAY EXPRESS, INC.
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CHICAGO HEIGHTS, ILLINOIS

INFORMATION GATHERED ON MONITORING WELL & SUMP SURVEY

Monitoring Well No.	Top/Casing to Total Depth	Depth to Fluid	Fluid Thickness	Type of Fluid
MW-1	15.08	14.58	0.5	Diesel
MW-3	14.87	14.0	0.87	Water
MW-4	14.80	12.02	2.78	Water
Sump #1	12.78	12.42	0.36	0.125 Diesel 0.235 Water
Sump #2	10.22	0	0	0

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volatile organic chemicals with an ionization potential of less than 10.6 eV (electron-volts). This range includes typical organic constituents found in gasolines and solvents. The PID meter was calibrated to provide accurate readings between 0 and 2,000 ppm (parts per million).

Soil samples were collected with the aid of a stainless steel knife. Cross-contamination was prevented by washing the knife with de-ionized water before and after each sampling event and by wearing single use, disposable latex gloves. The samples were placed into 4-oz. sampling containers, covered with foil wrap, and subsequently screened following headspace analysis procedures using the PID to measure the organic vapors in the air space above the soil sample.

Separate selected soil samples were tightly packed in 4-oz. glass sample containers with teflon-lined lids. These prepared samples were properly labeled noting the date, time, sample number, and depth taken. The sample containers were placed into an ice packed cooler and submitted under normal Chain-of-Custody procedures to EMS Heritage Laboratories for laboratory analysis.

5.0 ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) CLEANUP GUIDELINES

The IEPA has adopted soil and groundwater cleanup guidelines for petroleum fuel releases, where groundwater has not been encountered and/or no evidence of free product exists. In summary, these soil cleanup guidelines under the IEPA UST program are:

1. Benzene - 0.025 ppm (25 ppb)

2. Benzene, Ethylbenzene, Toluene, and Xylene (BETX)
   (Benzene + Total of the other three) - 16.025 ppm (16,025 ppb)

3. No visible contaminated soils

4. No petroleum odor

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6.0 LABORATORY ANALYSIS OF SOIL AND GROUNDWATER SAMPLES

6.1 Soil Samples

On July 15, 1991, HR/E submitted four (4) soil samples representative of the soil unit encountered within soil borings SB-6, SB-9, SB-13, and SB-14 under Chain-of-Custody to Heritage EMS Laboratories, Inc., Romeoville, Illinois for analysis. A copy of the Chain-of-Custody document is provided in Appendix II. The representative soil samples were analyzed for volatile organics, including benzene, ethylbenzene, toluene, and xylenes (BETX) constituents, in accordance with EPA SW-846 Method 8240 using gas chromatography/mass spectrometry (Heated Purge and Trap). This method definitively identifies and quantifies volatile organic compounds. In addition, the samples were analyzed for Total Petroleum Hydrocarbons (TPH) in accordance with Method SM 503E (Gravimetric Method).

6.2 Results of Laboratory Analysis

The results of chemical analyses for BETX performed on the soil and water samples are summarized in Table 3. The Certificate of Analyses of the laboratory results are referenced in Appendix III. Refer to this exhibit for information regarding the specific analyses preformed on each submitted sample.

Based upon analytical results, the soils from borings SB-6, SB-9, SB-13, and SB-14 exhibited benzene and total BETX concentrations below the established IEPA cleanup objectives. Soil samples from soil borings SB-1, SB-2, SB-4, SB-5, SB-7, SB-8, SB-10, and SB-11 were not submitted for analysis because field observations and elevated PID meter screening results were indicative of petroleum contamination within these samples.

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TABLE 3
ROADWAY EXPRESS, INC.
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, ILLINOIS

SUMMARY OF LABORATORY RESULTS
BETX
SOIL BORING SAMPLES (mg/kg-ppb)

Soil Boring	Detection Limit	Benzene	Ethylbenzene	Toluene	Xylene	Total BETX
SB-6 15.0'-16.0'	6	BDL	BDL	BDL	BDL	BDL
SB-9 13.0'-14.0'	7	BDL	BDL	BDL	BDL	BDL
SB-13 13.0'-14.0'	12	BDL	BDL	BDL	BDL	BDL
SB-14 16.5'17.5'	7	BDL	BDL	BDL	BDL	BDL
IEPA Soil Cleanup Objectives for Petroleum Fuel Contaminated Soil[A]	25	--	--	--	--	16,025

(A) Based on:
1. Contamination limited to onsite soils
2. Groundwater not encountered

BETX Analysis by GC/MS (Heated Purge and Trap), Method SW846-8240
BDL = Below Detection Limit
( ) = Estimated Concentration

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The total petroleum hydrocarbon (TPH) analytical results, summarized in Table 4, indicates slight elevated TPH concentrations. These concentrations may be the result from a) low concentration of additional volatile constituents detected during the volatile organic analysis of the soil samples, b) unknown semi-volatile organic constituents which are present within the soils, and/or c) other organic acids which may normally be present in the site soils. Since there were no petroleum odors or elevated PID readings on these samples, the latter is suspected.

7.0 CONCLUSIONS

Based on field observations, soil sampling and analytical determinations conducted, and reported herein, the following conclusions are offered:

- Petroleum soil contamination extends beyond the UST tank farm excavation.

- Groundwater was observed during the subsurface investigation at a depth of approximately 20 feet BSG within selected borings. Elevated groundwater observed in monitoring well MW-4 is potentially from surface runoff entering the well casing.

- Significant petroleum contamination was first observed at a depth of approximately 13.5 feet BSG within a 0.5 to 1.0 foot thick sand unit, as encountered. This sand unit exhibited black staining typical of degraded petroleum in soil borings advanced in close proximity of the tank farm.

- The horizontal extent of contamination appears to be primarily associated with the sand unit encountered at the 12 to 14 foot depth at the site. The vertical migration of contamination appears to extend to a depth of 20 feet in the soil borings located immediately adjacent to the tank farm. This depth of penetration is not evident in the borings further from the system, except for SB-12, which is located adjacent to the pipelines and the pipeline trench.

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TABLE 4
ROADWAY EXPRESS, INC.
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, ILLINOIS

SUMMARY OF LABORATORY RESULTS
TOTAL PETROLEUM HYDROCARBONS (TPH)
SOIL BORING SAMPLES (mg/kg)

Soil Boring		TPH
SB-6	15.0'-16.0'	150
SB-9	13.0'-14.0'	150
SB-13	13.0'-14.0'	100
SB-14	16.5'-17.5'	300

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- Free petroleum product appears to be concentrated in the northeast corner of the UST tank farm.

- Free petroleum product was not observed within the soils at any soil boring.

- Analytical results from soil borings SB-6, SB-9, SB-13, and SB-14 exhibit total BETX concentrations within the established IEPA cleanup objectives.

- The estimated area and extent of contamination is presented in Figure 3.

8.0 RECOMMENDATIONS

Based on field observations, soil sampling and analytical determinations conducted, and reported herein, HR/E recommends the following additional activities be conducted:

- Install three stainless steel monitoring wells to determine if groundwater has been impacted.

- Obtain contaminated soil samples for volatile and semi-volatile organic analyses in order to evaluated remedial alternatives.

The data collected in these activities would be utilized in determining the appropriate corrective/remediation plan to be implemented in the resolution of the contamination as found at the site. Such corrective actions could include; excavation and disposal, insitu soil treatment, such as soil venting or bioremediation.

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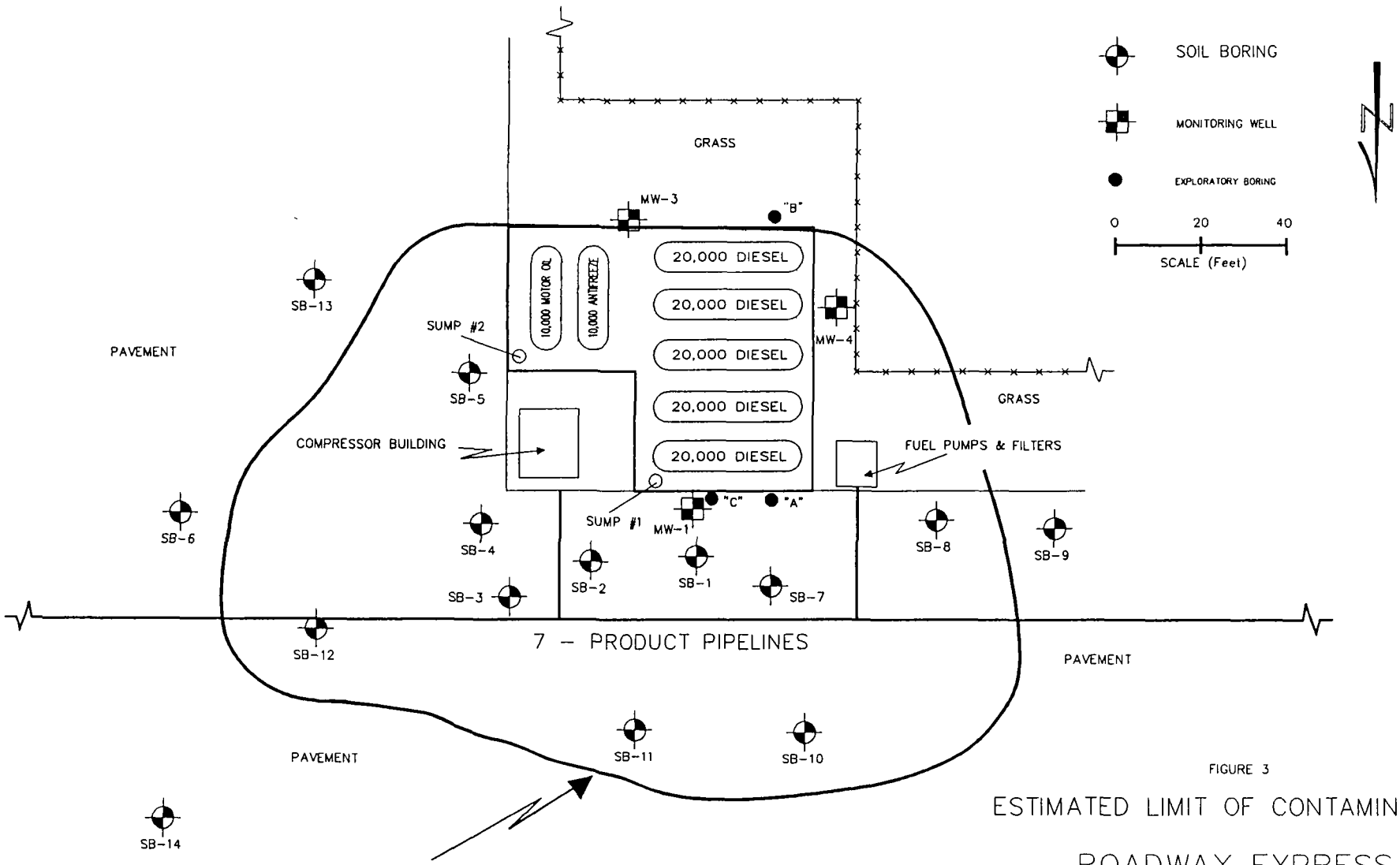

FIGURE 3

ESTIMATED LIMIT OF CONTAMINATION

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Chicago Heights, IL

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23 July 1991

APPENDIX I

SOIL BORING LOGS

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SOIL TEST BORING LOG LOG No. : SB-1

HERITAGE REMEDIATION/ENGINEERING, INC
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

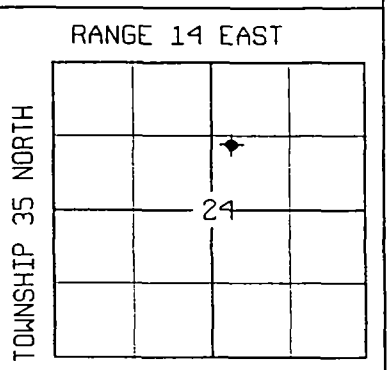
HR/E JOB No · 4063

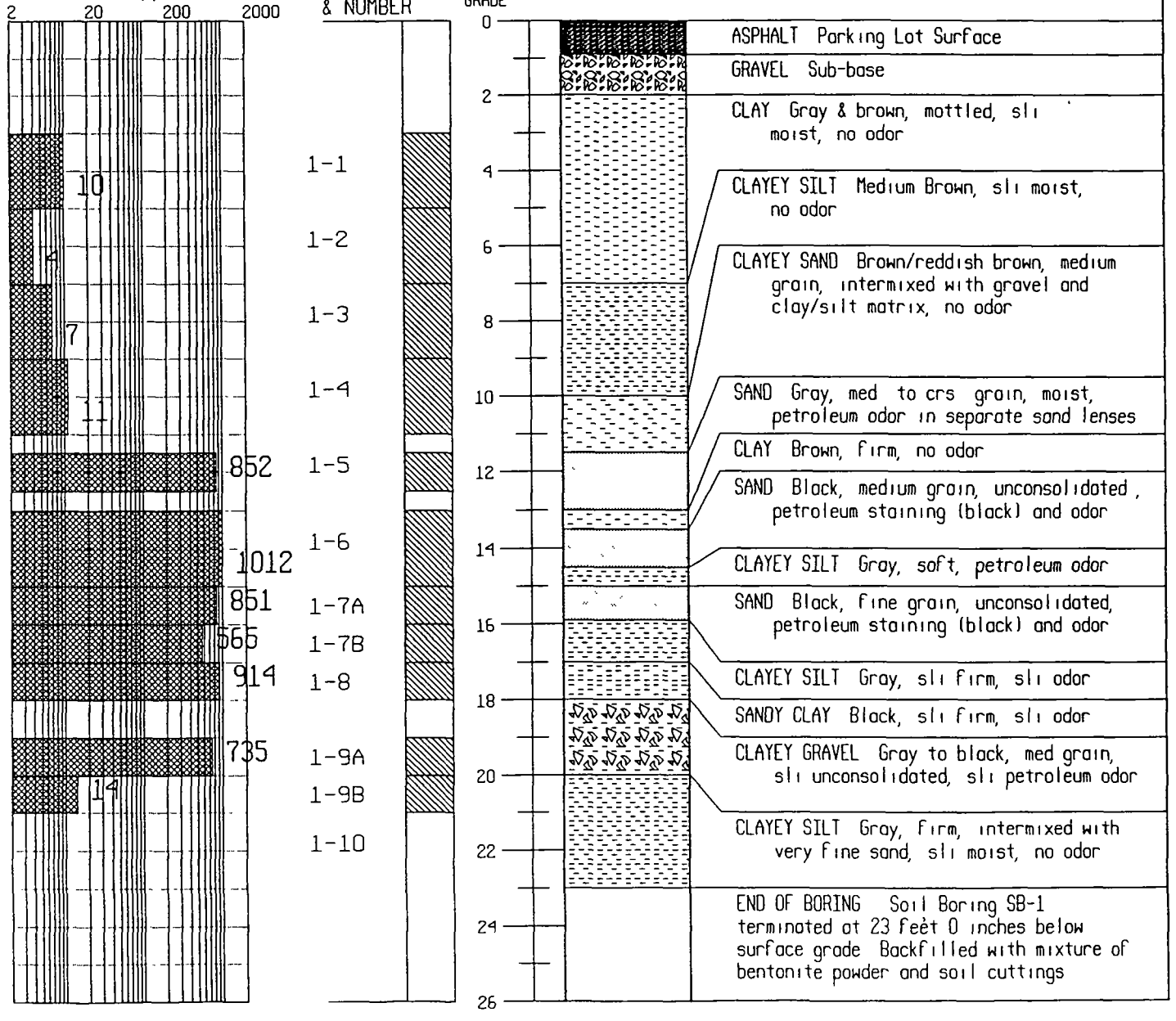
DRILLING Co: WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD HOLLOW STEM AUGER
SAMPLING METHOD· 2 ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST· MITCHELL
PROJECT ENGINEER MILLMAN
START 7/11/91
END 7/11/91

COORDINATES
X· SEE SITE MAP
Y SEE SITE MAP
Z· SEE SITE MAP

WEATHER· 80F, SUNNY

EST WATER LEVEL





SOIL TEST BORING LOG LOG No. : SB-2

HERITAGE REMEDIATION/ENGINEERING, INC
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

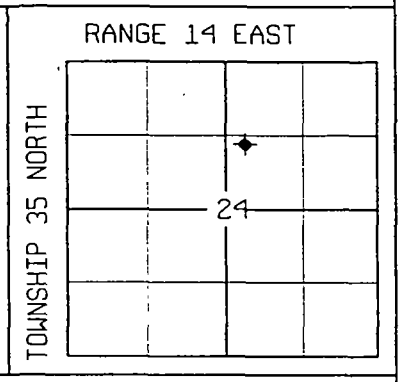
HR/E JOB No 4063

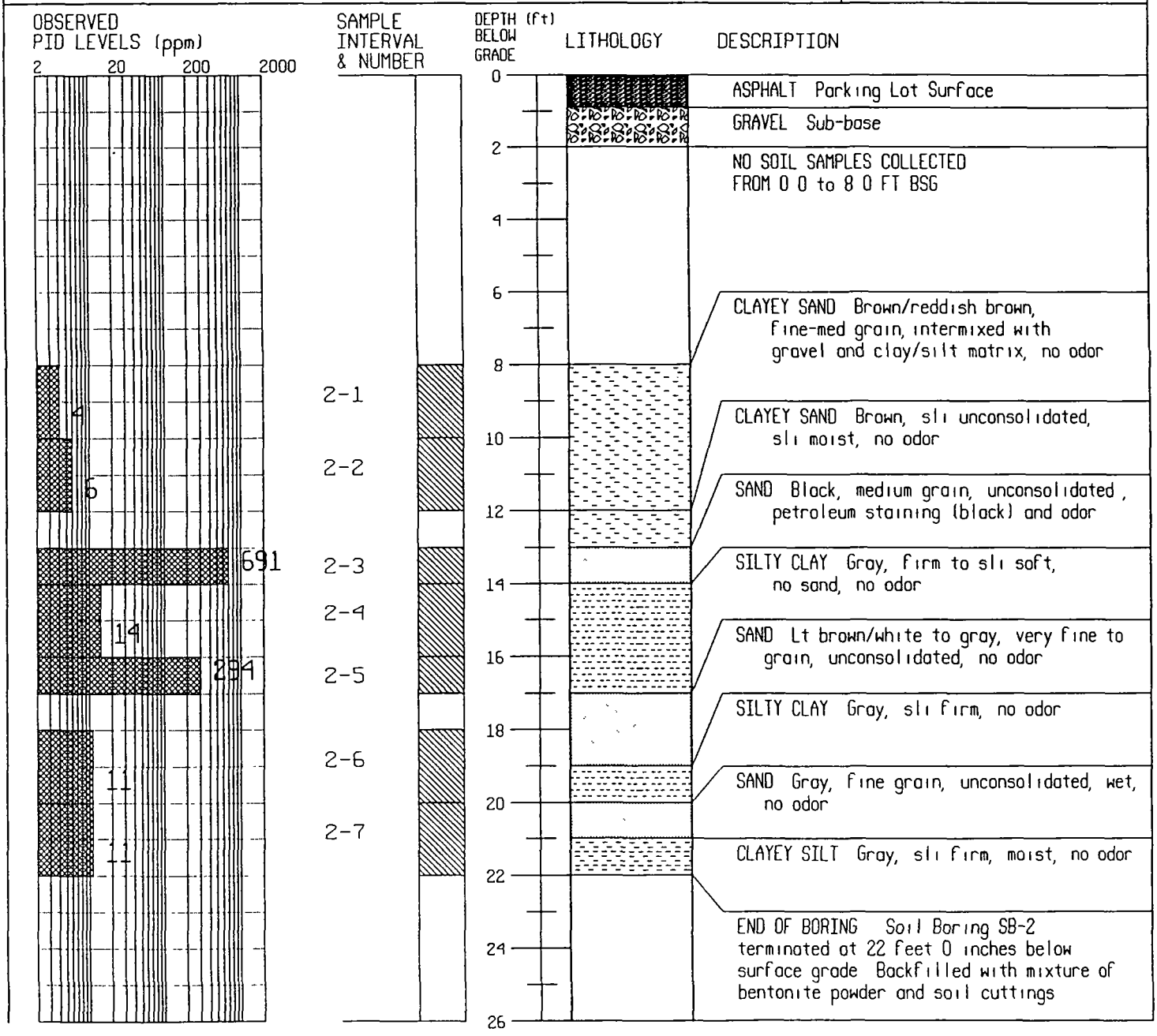
DRILLING Co WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD HOLLOW STEM AUGER
SAMPLING METHOD: 2 Ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/11/91
END 7/11/91

COORDINATES
X SEE SITE MAP
Y SEE SITE MAP
Z SEE SITE MAP

WEATHER 80F, SUNNY

EST WATER LEVEL





SOIL TEST BORING LOG — LOG No. : SB-3

HERITAGE REMEDIATION/ENGINEERING, INC.
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

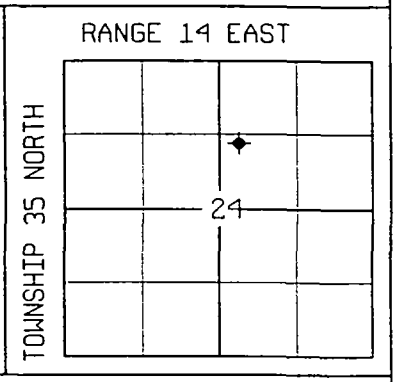
HR/E JOB No 4063

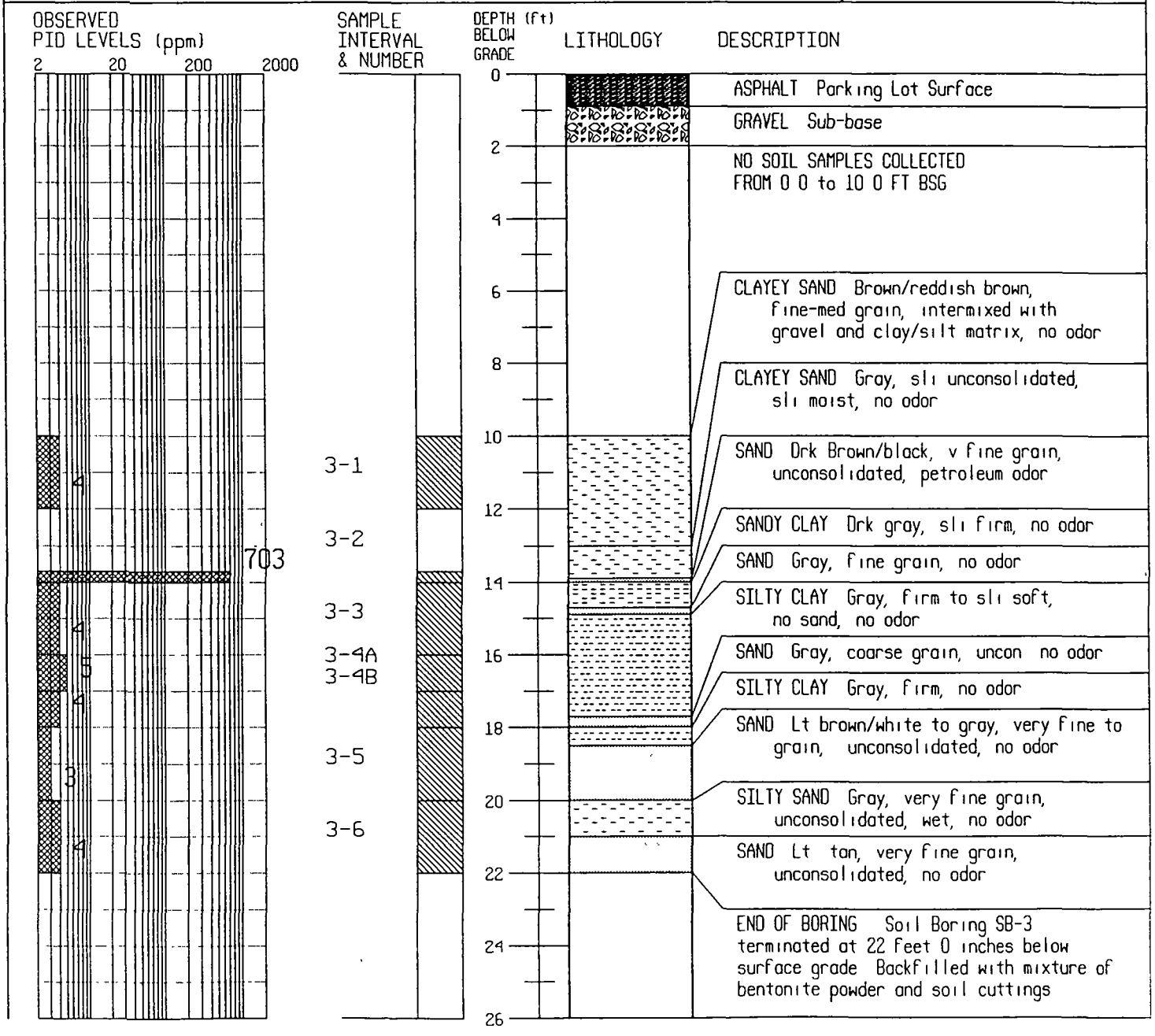
DRILLING Co: WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD HOLLOW STEM AUGER
SAMPLING METHOD: 2 Ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/11/91
END 7/11/91

COORDINATES
X. SEE SITE MAP
Y. SEE SITE MAP
Z SEE SITE MAP

WEATHER 80F, SUNNY

EST WATER LEVEL





SOIL TEST BORING LOG — LOG No. : SB-4

HERITAGE REMEDIATION/ENGINEERING, INC.
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

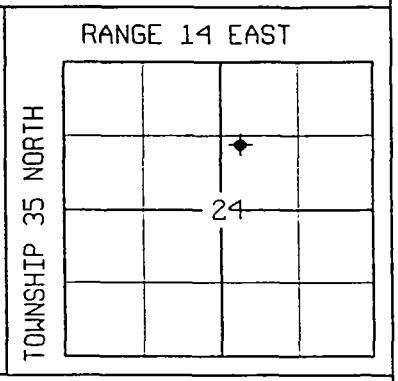
HR/E JOB No : 4063

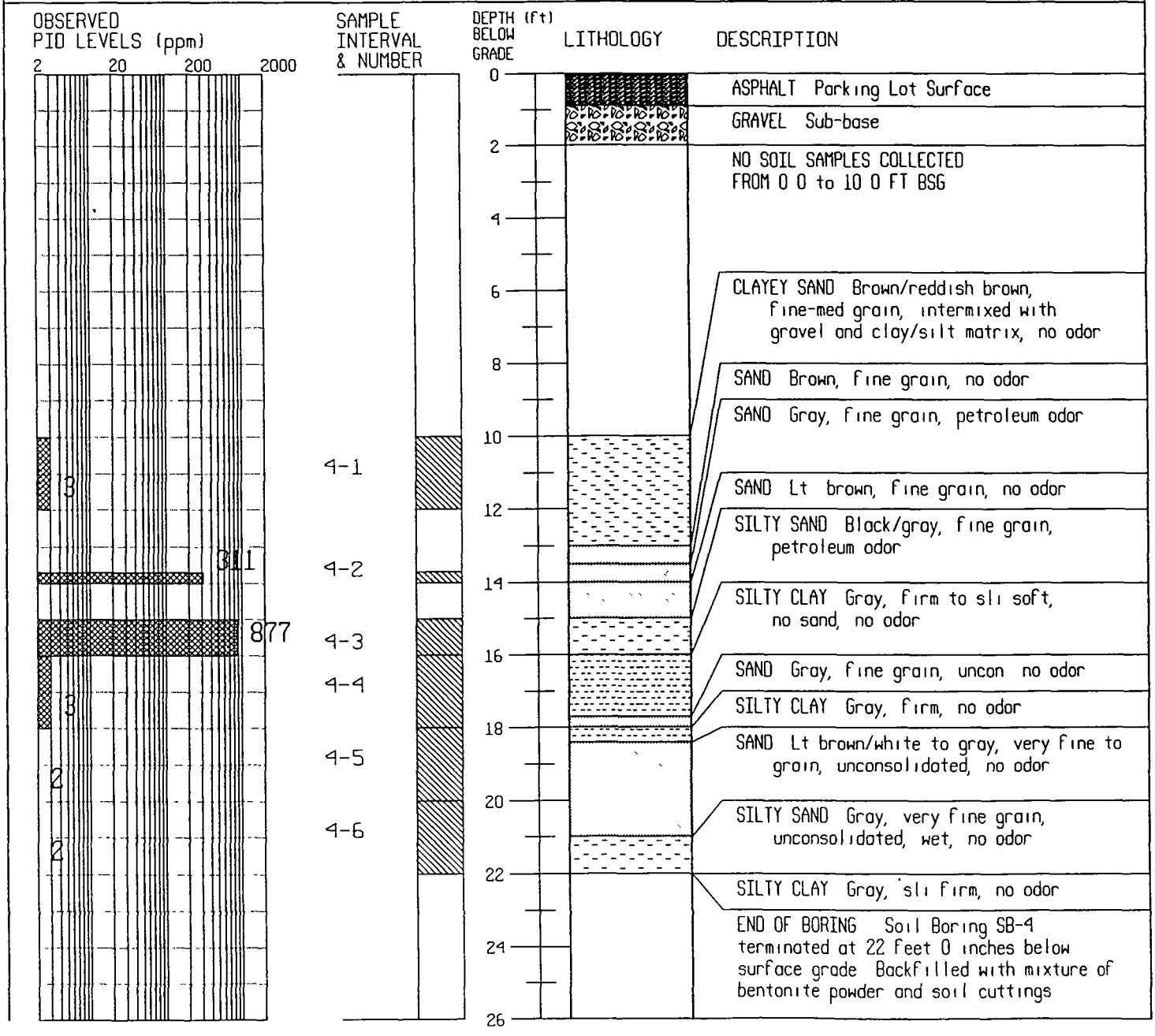
DRILLING Co: WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD HOLLOW STEM AUGER
SAMPLING METHOD: 2 ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST: MITCHELL
PROJECT ENGINEER: MILLMAN
START 7/11/91
END 7/11/91

COORDINATES
X SEE SITE MAP
Y: SEE SITE MAP
Z SEE SITE MAP

WEATHER 80F, SUNNY

EST WATER LEVEL:





SOIL TEST BORING LOG — LOG No. : SB-5

HERITAGE REMEDIATION/ENGINEERING, INC
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

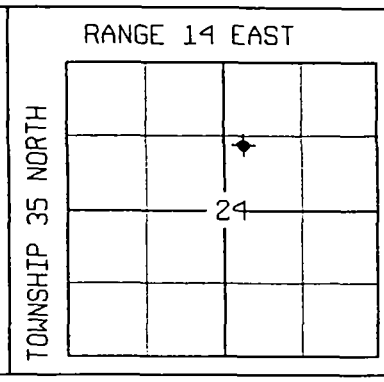
HR/E JOB No. 4063

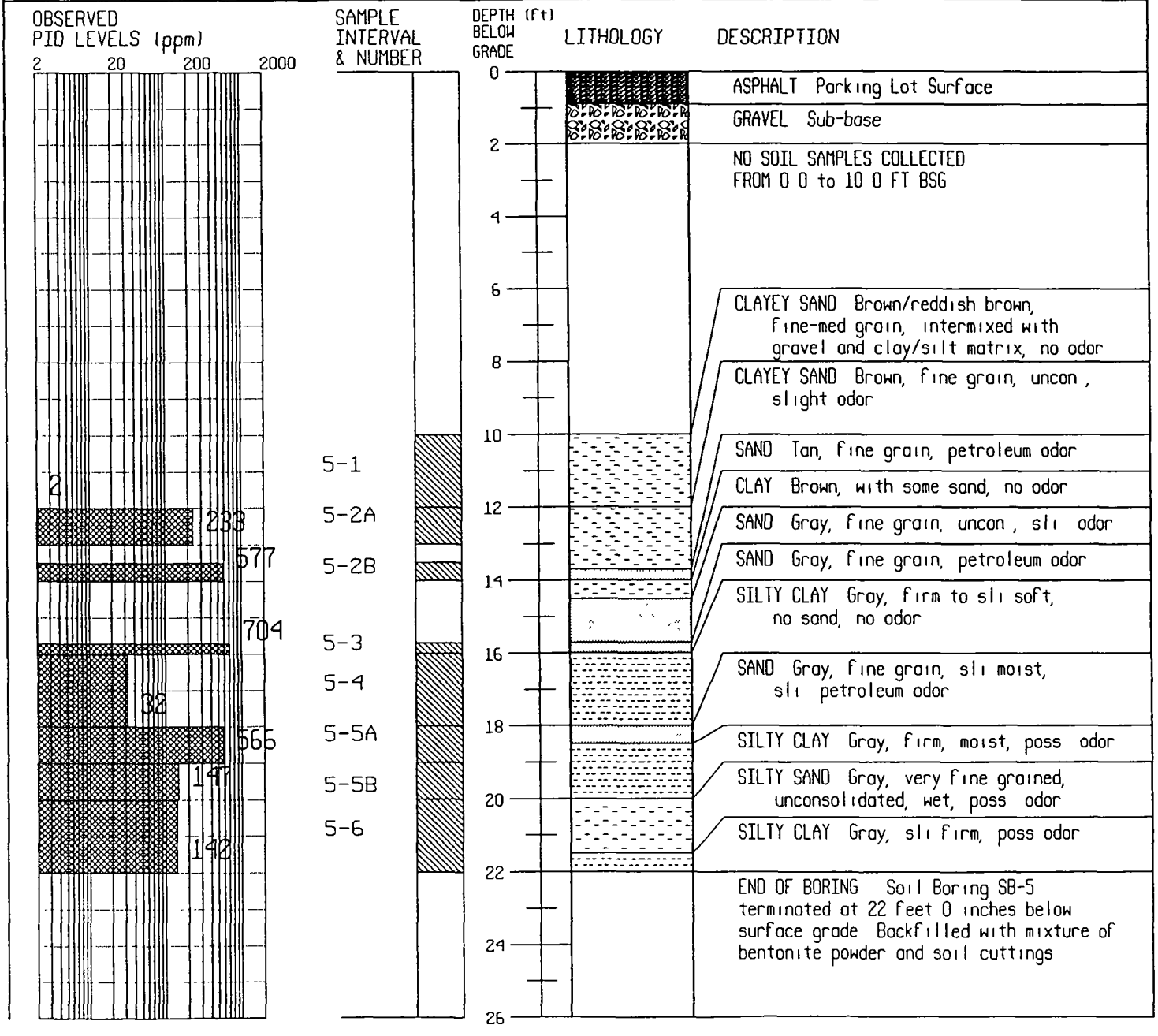
DRILLING Co: WHITNEY & ASSOCIATES
DRILL RIG: N/A
DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD: 2 ft SPLIT-SPOON
DRILLER: STEVE
PROJECT GEOLOGIST: MITCHELL
PROJECT ENGINEER: MILLMAN
START: 7/11/91
END: 7/11/91

COORDINATES
X SEE SITE MAP
Y SEE SITE MAP
Z SEE SITE MAP

WEATHER: 80F, SUNNY

EST. WATER LEVEL





SOIL TEST BORING LOG LOG No. : SB-6

HERITAGE REMEDIATION/ENGINEERING, INC
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

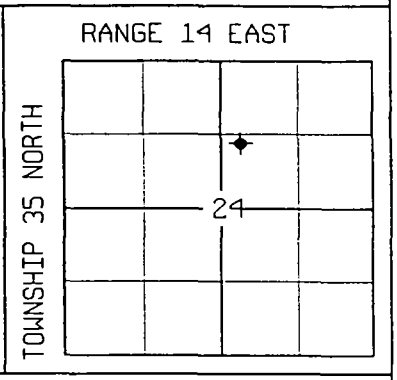
HR/E JOB No · 4063

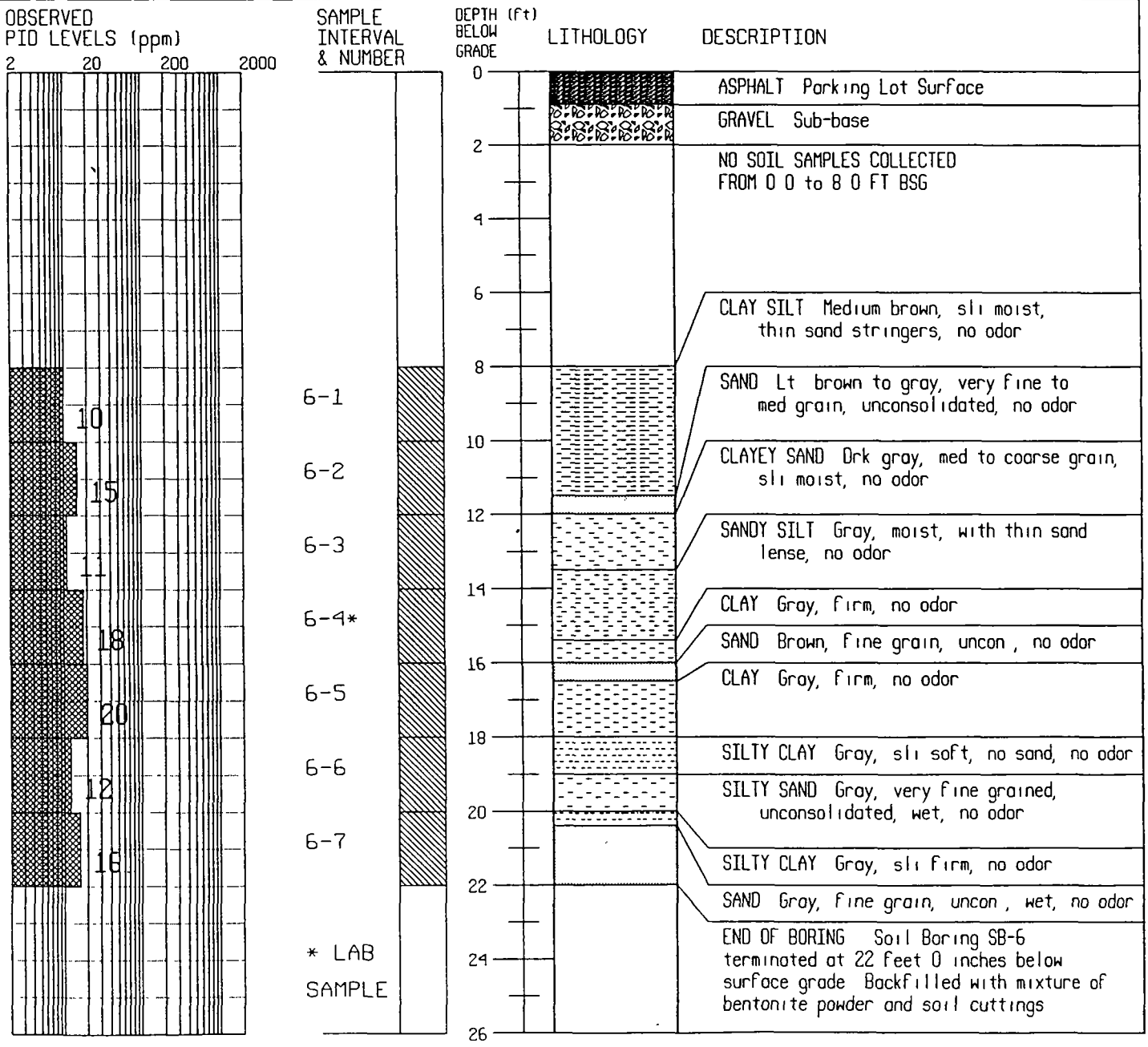
DRILLING Co: WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD: 2 ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START: 7/11/91
END: 7/11/91

COORDINATES
X SEE SITE MAP
Y SEE SITE MAP
Z SEE SITE MAP

WEATHER: 80F, SUNNY

EST WATER LEVEL





SOIL TEST BORING LOG LOG No. : SB-7

HERITAGE REMEDIATION/ENGINEERING, INC.
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

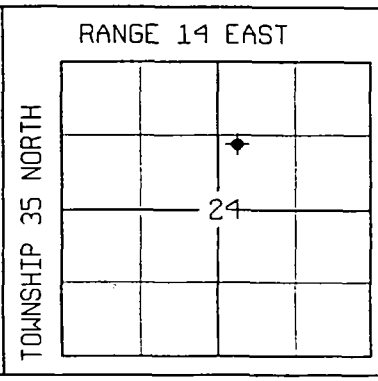
HR/E JOB No 4063

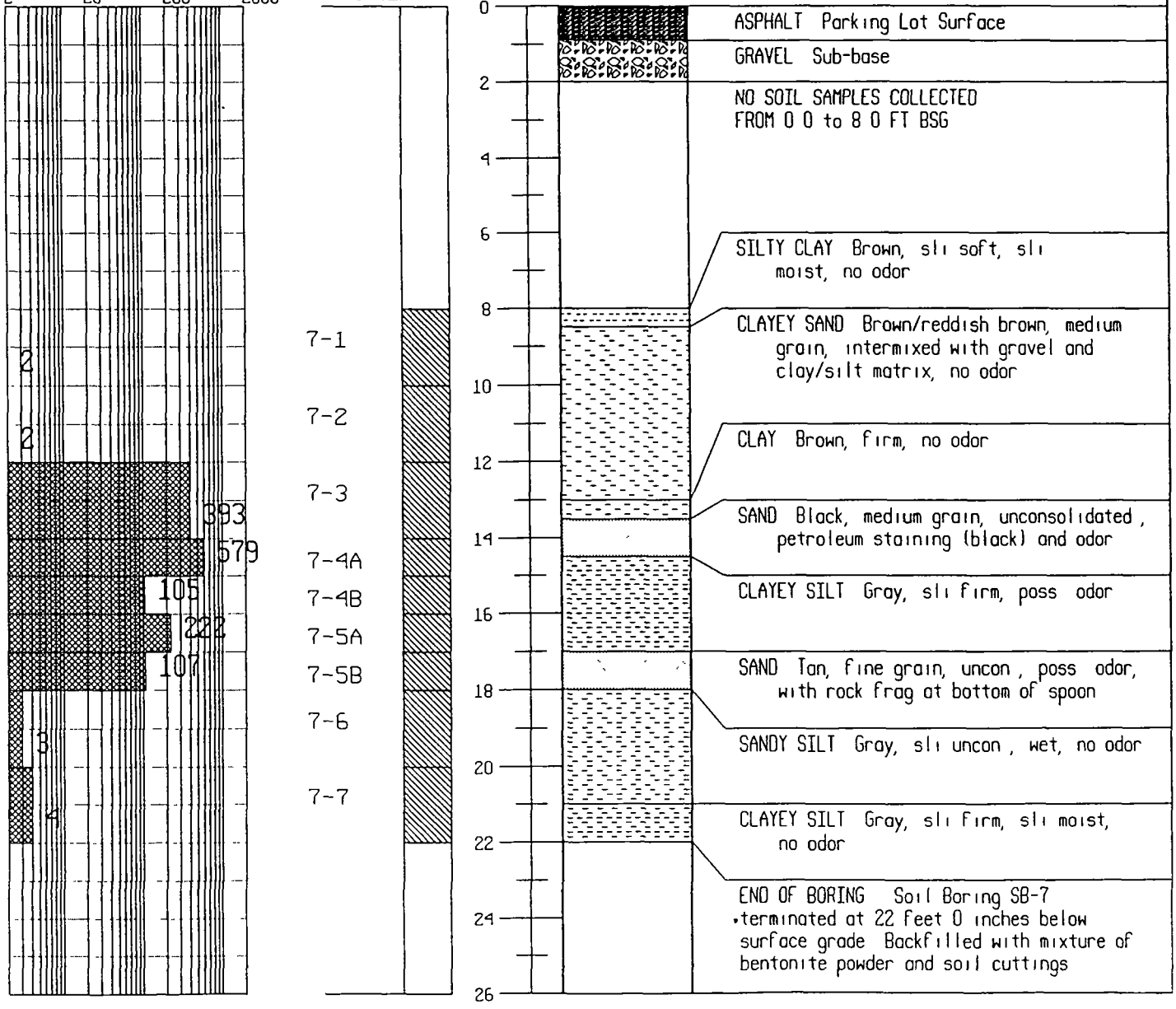
DRILLING Co WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD 2 ft SPLIT-SPOON
DRILLER: STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/11/91
END 7/11/91

COORDINATES:
X SEE SITE MAP
Y SEE SITE MAP
Z SEE SITE MAP

WEATHER 80F, SUNNY

EST WATER LEVEL





SOIL TEST BORING LOG LOG No. : SB-8

HERITAGE REMEDIATION/ENGINEERING, INC
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

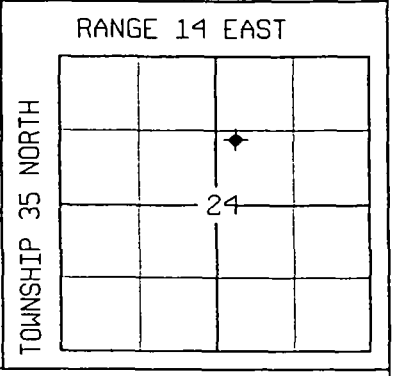
HR/E JOB No 4063

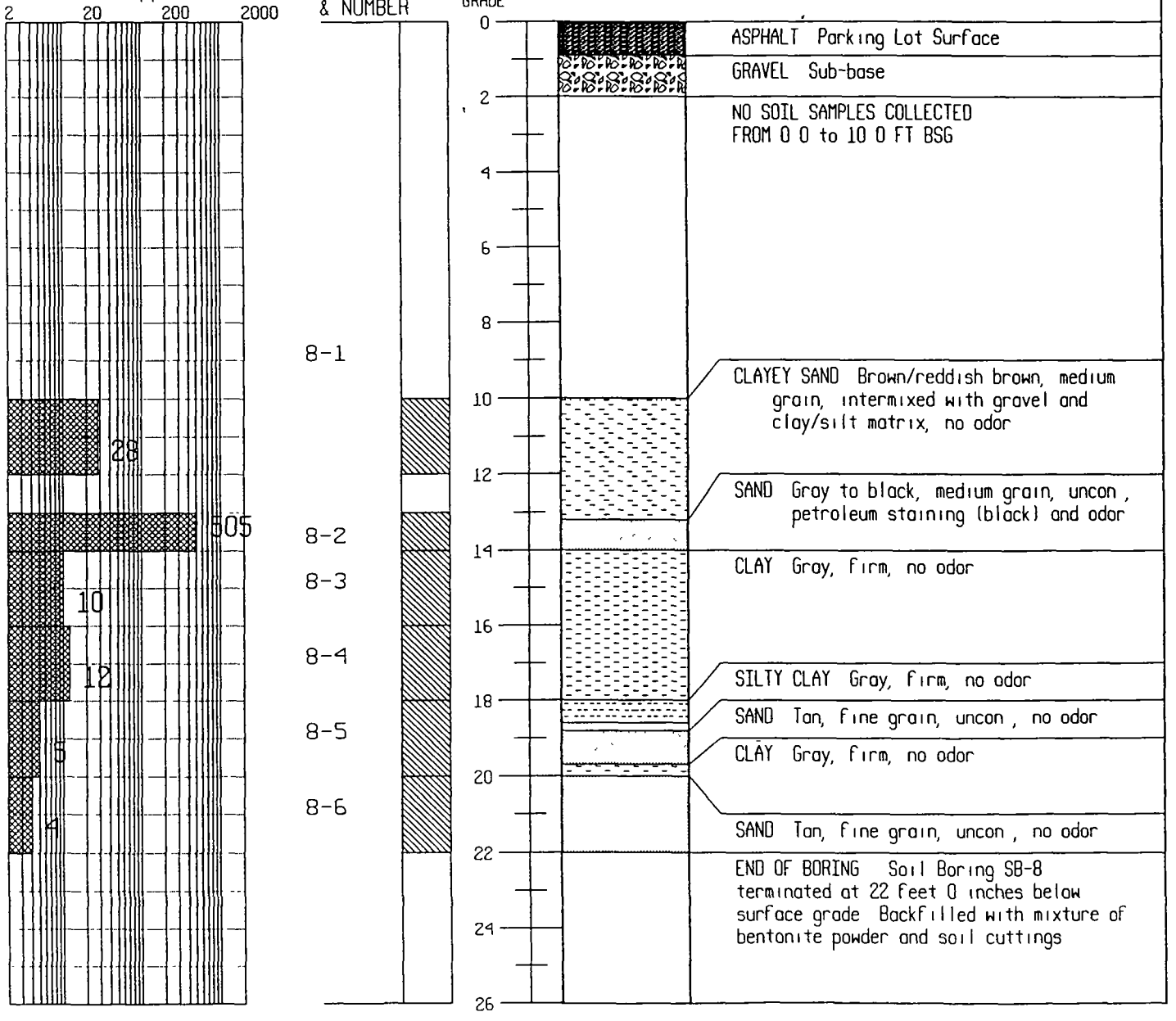
DRILLING Co: WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD 2 Ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/12/91
END 7/12/91

COORDINATES
X SEE SITE MAP
Y SEE SITE MAP
Z SEE SITE MAP

WEATHER 80F, SUNNY

EST WATER LEVEL





SOIL TEST BORING LOG LOG No. : SB-9

HERITAGE REMEDIATION/ENGINEERING, INC.
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

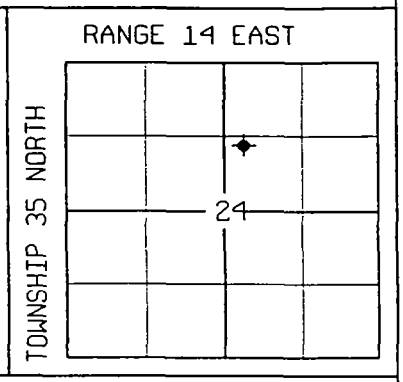
HR/E JOB No. 4063

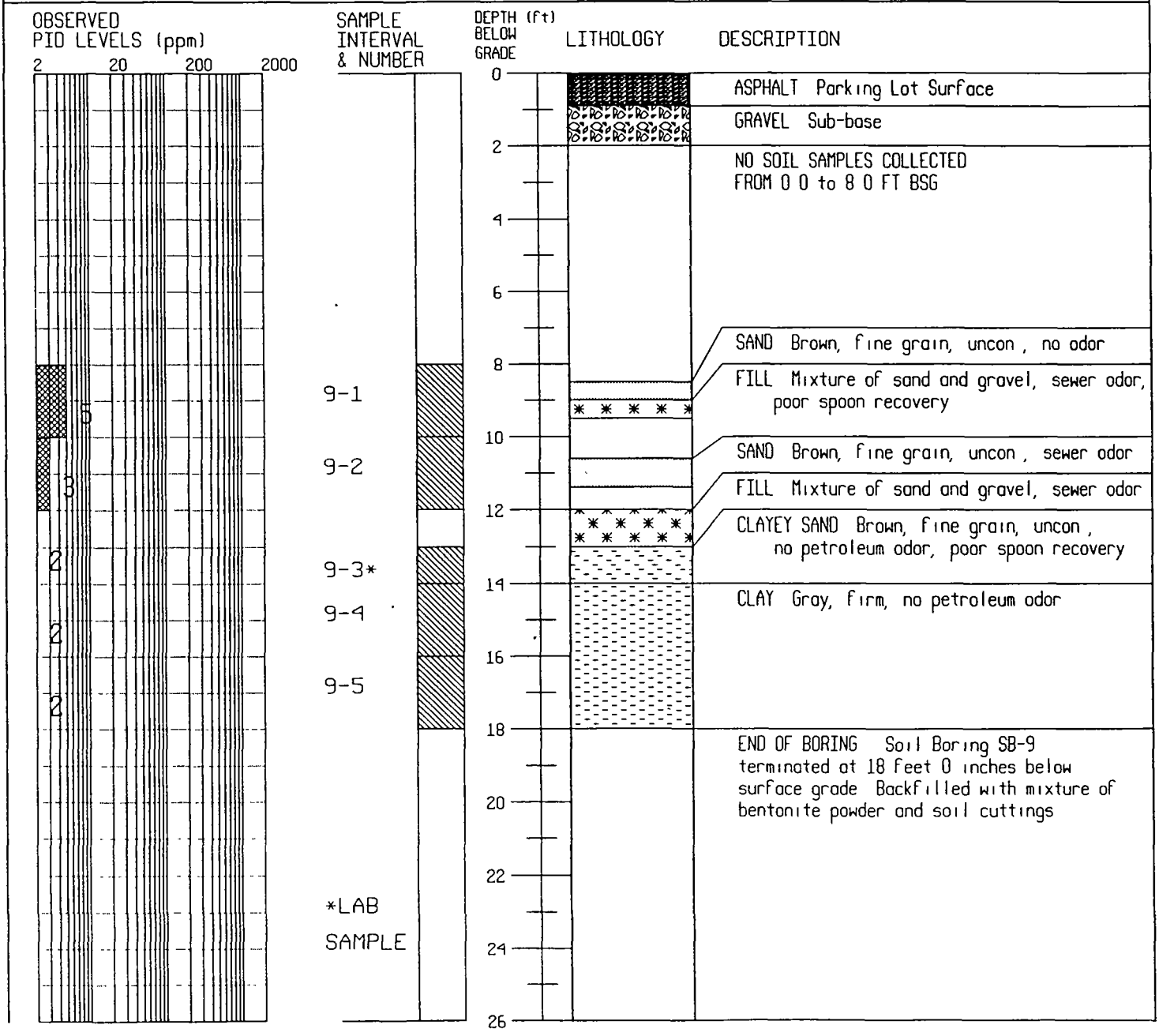
DRILLING Co: WHITNEY & ASSOCIATES
DRILL RIG: N/A
DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD: 2 ft SPLIT-SPOON
DRILLER: STEVE
PROJECT GEOLOGIST: MITCHELL
PROJECT ENGINEER: MILLMAN
START: 7/12/91
END: 7/12/91

COORDINATES
X SEE SITE MAP
Y SEE SITE MAP
Z SEE SITE MAP

WEATHER: 80F, SUNNY

EST WATER LEVEL





SOIL TEST BORING LOG — LOG No. : SB-10

HERITAGE REMEDIATION/ENGINEERING, INC
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

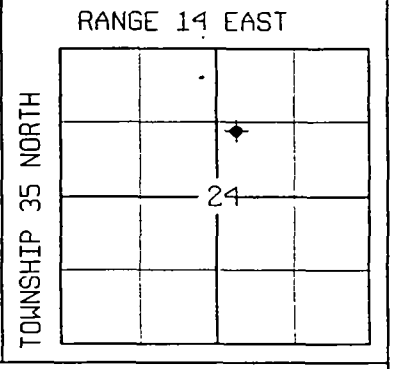
HR/E JOB No. : 4063

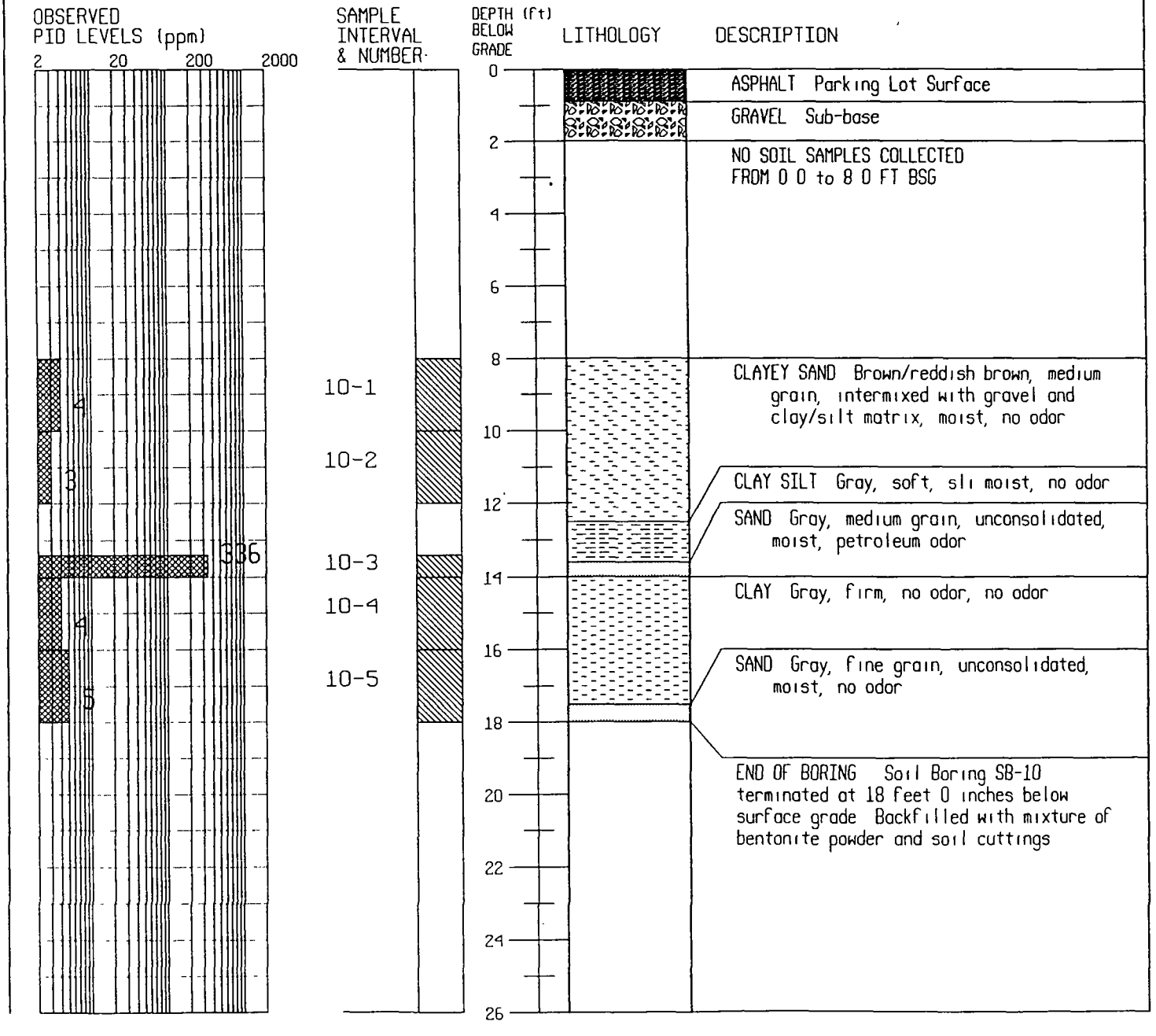
DRILLING Co WHITNEY & ASSOCIATES
DRILL RIG: N/A
DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD 2 ft SPLIT-SPOON
DRILLER: STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/12/91
END 7/12/91

COORDINATES
X: SEE SITE MAP
Y: SEE SITE MAP
Z: SEE SITE MAP

WEATHER 80F, SUNNY

EST WATER LEVEL:





SOIL TEST BORING LOG — LOG No. : SB-11

HERITAGE REMEDIATION/ENGINEERING, INC.
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

HR/E JOB No 4063

DRILLING Co WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD HOLLOW STEM AUGER
SAMPLING METHOD 2 Ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/12/91
END 7/12/91

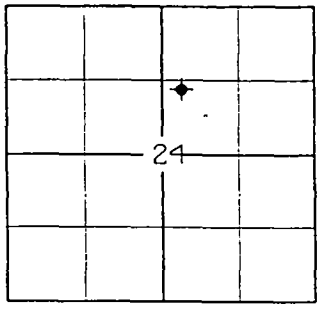
COORDINATES:
X: SEE SITE MAP
Y: SEE SITE MAP
Z: SEE SITE MAP

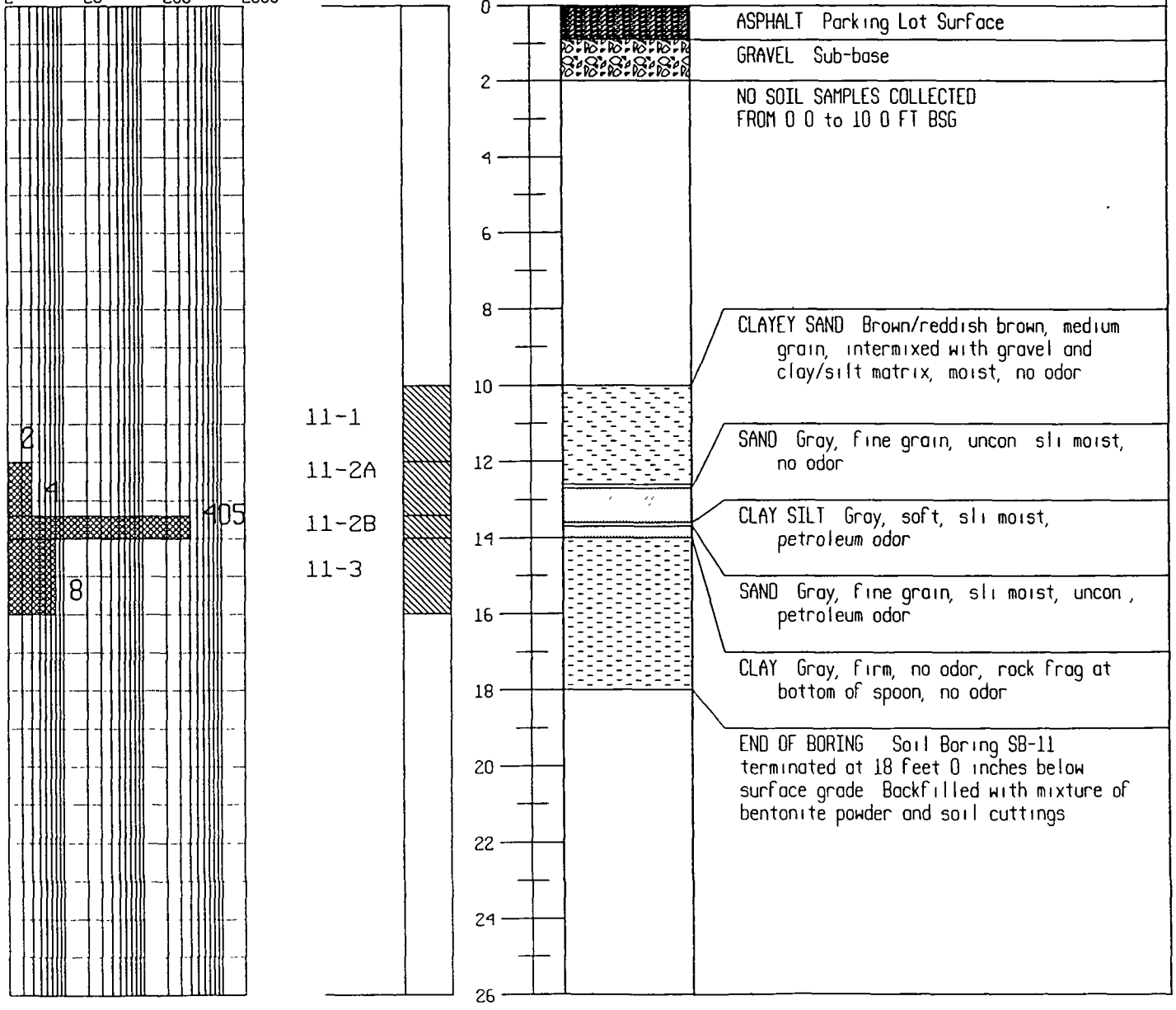
WEATHER: 80F, SUNNY

EST WATER LEVEL

RANGE 14 EAST

TOWNSHIP 35 NORTH





SOIL TEST BORING LOG — LOG No. : SB-12

HERITAGE REMEDIATION/ENGINEERING, INC
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

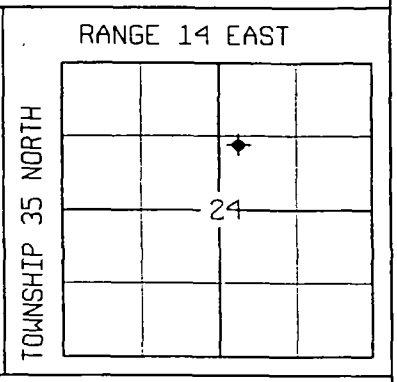
HR/E JOB No 4063

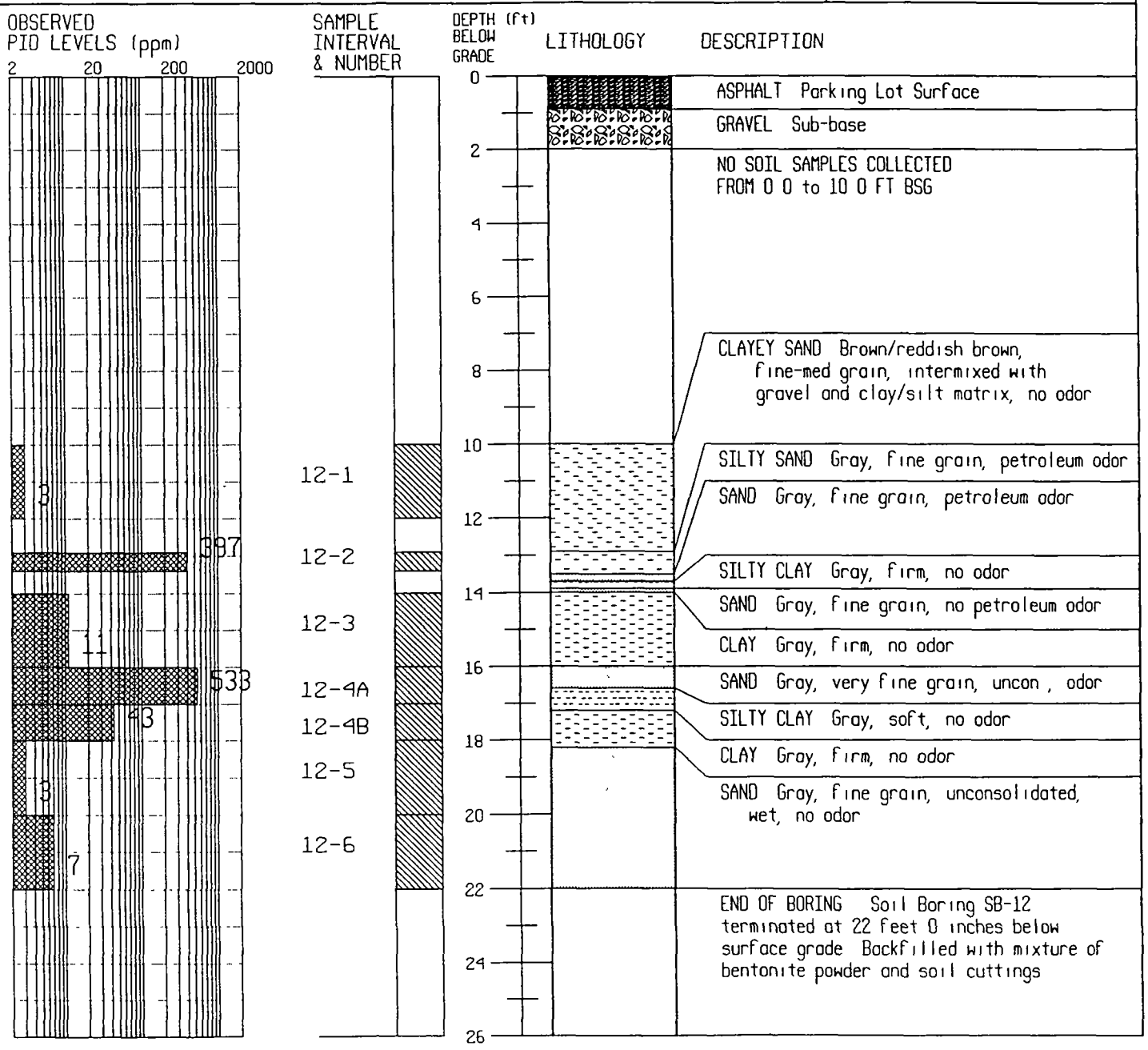
DRILLING Co: WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD 2 ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/12/91
END 7/12/91

COORDINATES
X SEE SITE MAP
Y: SEE SITE MAP
Z SEE SITE MAP

WEATHER 80F, SUNNY

EST. WATER LEVEL





SOIL TEST BORING LOG — LOG No. : SB-13

HERITAGE REMEDIATION/ENGINEERING, INC
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

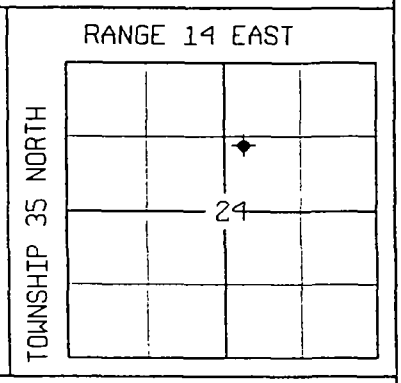
HR/E JOB No 4063

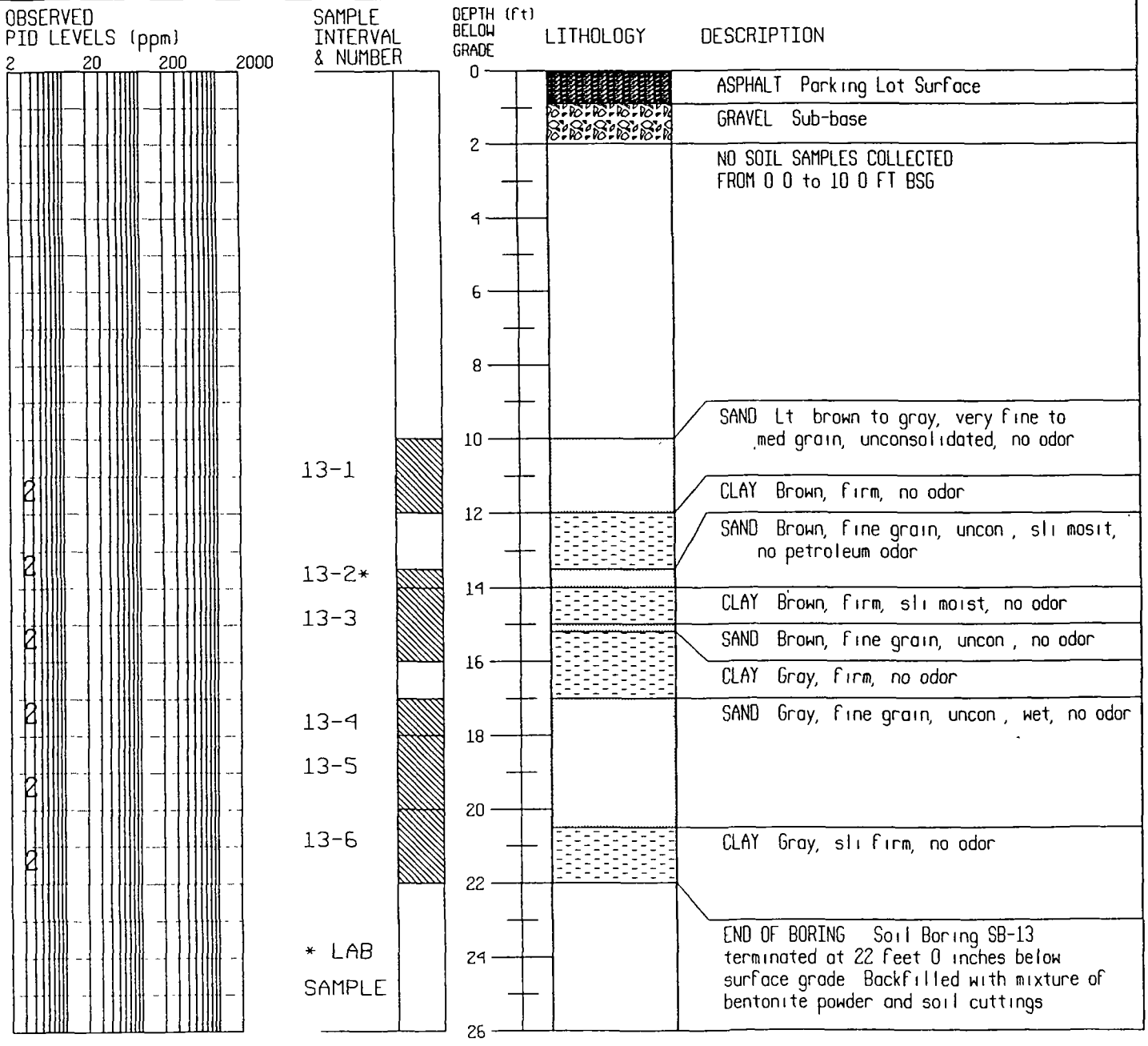
DRILLING Co WHITNEY & ASSOCIATES
DRILL RIG: N/A
DRILLING METHOD HOLLOW STEM AUGER
SAMPLING METHOD 2 Ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/12/91
END 7/12/91

COORDINATES
X: SEE SITE MAP
Y: SEE SITE MAP
Z SEE SITE MAP

WEATHER 80F, SUNNY

EST. WATER LEVEL





SOIL TEST BORING LOG — LOG No. : SB-14

HERITAGE REMEDIATION/ENGINEERING, INC.
1319 MARQUETTE DRIVE
ROMEOVILLE, ILLINOIS 60441
PHONE 708-378-1600
FAX 708-378-2200

SITE LOCATION: ROADWAY SERVICES, INC
2000 LINCOLN HIGHWAY
CHICAGO HEIGHTS, IL

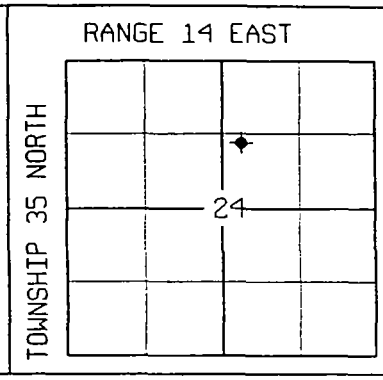
HR/E JOB No 4063

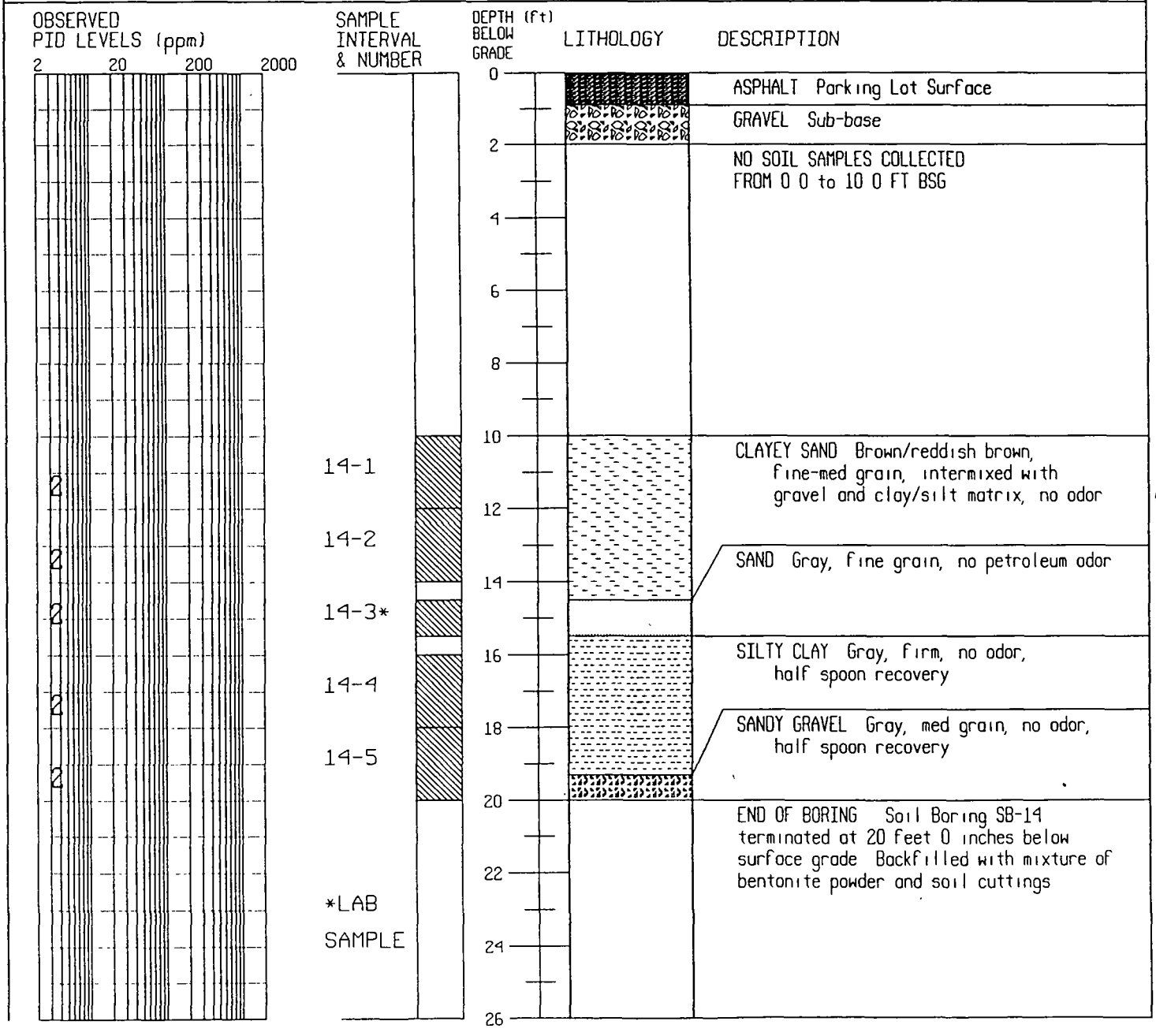
DRILLING Co WHITNEY & ASSOCIATES
DRILL RIG N/A
DRILLING METHOD HOLLOW STEM AUGER
SAMPLING METHOD 2 Ft SPLIT-SPOON
DRILLER STEVE
PROJECT GEOLOGIST MITCHELL
PROJECT ENGINEER MILLMAN
START 7/12/91
END 7/12/91

COORDINATES
X. SEE SITE MAP
Y. SEE SITE MAP
Z. SEE SITE MAP

WEATHER 80F, SUNNY

EST WATER LEVEL





APPENDIX II
CHAIN-OF-CUSTODY DOCUMENT(S)

100% Recycled Paper

P.O. #5051

HERITAGE REMEDIATION/ENGINEERING, INC.

CHAIN OF CUSTODY RECORD

PROJ. NO. 4063 | PROJECT NAME: ROADWAY SERVICES, INC

SAMPLERS: (Signature) Scott Mitchell

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA	8246	TRH SM 503E	REMARKS
1	7/11/91	1430		X	SB-6 (15.0-16.0')	1	X	X		C1315 99
2	7/12/91	1100		X	SB-9 (13.0-14.0')	1	X	X		600
3	7/12/91	1355		X	SB-13 (13.0-14.0')	1	X	X		601
4	7/12/91	1445		X	SB-14 (16.5-17.5')	1	X	X		602

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature) Scott Mitchell	Date / Time 7/15/91 9:55	Received for Laboratory by: (Signature) Sylvia M.	Date / Time	Remarks	

APPENDIX III

CERTIFICATE OF ANALYSIS - SOIL

100% Recycled Paper

CERTIFICATE OF ANALYSIS

Service Location	Received	Lab ID
EMS HERITAGE LABORATORIES, INC. 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	15-JUL-91	C131599
	Complete 25-JUL-91	PO Number 5051.....
	Printed 26-JUL-91	Sampled 11-JUL-91 14:30

Report To	Bill To
HERITAGE REMEDIATION/ENGINEERING SCOTT MITCHELL 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441	HERITAGE REMEDIATION/ENGINEERING, INC. ANN BARBINI 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441

Sample Description

PROJECT: ROADWAY SERVICES,INC./4063
DESCRIPTION: SB-6 (15.0'-16.0')

VOLATILE ORGANICS (HEATED PURGE & TRAP) SW846-8240

Analyst: S. SHARP Analysis Date: 16-JUL-91 Instrument: GC/MS VOA Test: 0510.9. 0

Parameter	Result	Det. Limit	Units
ACETONE	36	26	ug/kg
ACROLEIN	BDL	64	ug/kg
ACRYLONITRILE	BDL	90	ug/kg
BENZENE	BDL	6	ug/kg
BROMODICHLOROMETHANE	BDL	6	ug/kg
BROMOFORM	BDL	6	ug/kg
BROMOMETHANE	BDL	13	ug/kg
CARBON DISULFIDE	11	6	ug/kg
CARBON TETRACHLORIDE	BDL	6	ug/kg
CHLOROBENZENE	BDL	6	ug/kg
CHLOROETHANE	EST 10	13	ug/kg
CHLOROFORM	BDL	6	ug/kg
CHLOROMETHANE	BDL	13	ug/kg
DIBROMOCHLOROMETHANE	BDL	6	ug/kg
CIS-1,3-DICHLOROPROPENE	BDL	6	ug/kg
DICHLORODIFLUOROMETHANE	BDL	6	ug/kg
1,1-DICHLOROETHANE	BDL	6	ug/kg
1,2-DICHLOROETHANE	BDL	6	ug/kg
1,1-DICHLOROETHENE	BDL	6	ug/kg
1,2-DICHLOROPROPANE	BDL	6	ug/kg
ETHYLBENZENE	BDL	6	ug/kg
FLUOROTRICHLOROMETHANE	BDL	6	ug/kg
2-HEXANONE	BDL	13	ug/kg
METHYLENE CHLORIDE	EST 4	6	ug/kg
METHYL ETHYL KETONE	BDL	13	ug/kg
4-METHYL-2-PENTANONE	BDL	13	ug/kg
STYRENE	BDL	6	ug/kg
1,1,2,2-TETRACHLOROETHANE	BDL	6	ug/kg
TETRACHLOROETHENE	BDL	6	ug/kg
TETRAHYDROFURAN	BDL	32	ug/kg
TOLUENE	BDL	6	ug/kg
1,2-DICHLOROETHENE (TOTAL)	BDL	6	ug/kg
TRANS-1,3-DICHLOROPROPENE	BDL	6	ug/kg
1,1,1-TRICHLOROETHANE	BDL	6	ug/kg

Parameter	Result	Det. Limit	Units
1,1,2-TRICHLOROETHANE	BDL	6	ug/kg
TRICHLOROETHENE	6	6	ug/kg
VINYL ACETATE	BDL	13	ug/kg
VINYL CHLORIDE	BDL	13	ug/kg
XYLENE (TOTAL)	BDL	6	ug/kg
SURROGATE RECOVERY			
DICHLOROETHANE-D4	92		% Rec
TOLUENE-D8	* 137		% Rec
BROMOFLUOROBENZENE	85		% Rec

Sample was reanalyzed on 7/17/91 but surrogate recovery did not improve due to matrix effects.

TOTAL PETROLEUM HYDROCARBONS (GRAVIMETRIC) SM 503E

Analyst: T. NOHA Analysis Date: 23-JUL-91 Test: G502,7, 0

Parameter	Result	Det. Limit	Units
PETROLEUM HYDROCARBONS	150	20	mg/kg

Sample Comments

* *See Note for Parameter*
BDL Below Detection Limit
EST Estimated Value

Quality Assurance Officer: [signature]

CERTIFICATE OF ANALYSIS

Service Location	Received	Lab ID
EMS HERITAGE LABORATORIES, INC. 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	15-JUL-91	C131600
	Complete 25-JUL-91	PO Number 5051.....
	Printed 26-JUL-91	Sampled 12-JUL-91 11:00

Report To	Bill To
HERITAGE REMEDIATION/ENGINEERING SCOTT MITCHELL 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441	HERITAGE REMEDIATION/ENGINEERING, INC. ANN BARBINI 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441

Sample Description

PROJECT: ROADWAY SERVICES INC./4063
DESCRIPTION: SB-9 (13.0'-14.0')

VOLATILE ORGANICS (HEATED PURGE & TRAP) SW846-8240

Analyst: S. SHARP Analysis Date: 16-JUL-91 Instrument: GC/MS VOA Test: 0510.9. 0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	26	ug/kg
ACROLEIN	BDL	66	ug/kg
ACRYLONITRILE	BDL	92	ug/kg
BENZENE	BDL	7	ug/kg
BROMODICHLOROMETHANE	BDL	7	ug/kg
BROMOFORM	BDL	7	ug/kg
BROMOMETHANE	BDL	13	ug/kg
CARBON DISULFIDE	BDL	7	ug/kg
CARBON TETRACHLORIDE	BDL	7	ug/kg
CHLOROBENZENE	BDL	7	ug/kg
CHLOROETHANE	BDL	13	ug/kg
CHLOROFORM	BDL	7	ug/kg
CHLOROMETHANE	BDL	13	ug/kg
DIBROMOCHLOROMETHANE	BDL	7	ug/kg
CIS-1,3-DICHLOROPROPENE	BDL	7	ug/kg
DICHLORODIFLUOROMETHANE	BDL	7	ug/kg
1,1-DICHLOROETHANE	BDL	7	ug/kg
1,2-DICHLOROETHANE	BDL	7	ug/kg
1,1-DICHLOROETHENE	BDL	7	ug/kg
1,2-DICHLOROPROPANE	BDL	7	ug/kg
ETHYLBENZENE	BDL	7	ug/kg
FLUOROTRICHLOROMETHANE	BDL	7	ug/kg
2-HEXANONE	BDL	13	ug/kg
METHYLENE CHLORIDE	EST 4	7	ug/kg
METHYL ETHYL KETONE	BDL	13	ug/kg
4-METHYL-2-PENTANONE	BDL	13	ug/kg
STYRENE	BDL	7	ug/kg
1,1,2,2-TETRACHLOROETHANE	BDL	7	ug/kg
TETRACHLOROETHENE	BDL	7	ug/kg
TETRAHYDROFURAN	BDL	33	ug/kg
TOLUENE	BDL	7	ug/kg
1,2-DICHLOROETHENE (TOTAL)	BDL	7	ug/kg
TRANS-1,3-DICHLOROPROPENE	BDL	7	ug/kg
1,1,1-TRICHLOROETHANE	BDL	7	ug/kg

Parameter	Result	Det. Limit	Units
1,1,2-TRICHLOROETHANE	BDL	7	ug/kg
TRICHLOROETHENE	BDL	7	ug/kg
VINYL ACETATE	BDL	13	ug/kg
VINYL CHLORIDE	BDL	13	ug/kg
XYLENE (TOTAL)	BDL	7	ug/kg
SURROGATE RECOVERY			
DICHLOROETHANE-D4	86		% Rec
TOLUENE-D8	* 138		% Rec
BROMOFLUOROBENZENE	78		% Rec

Sample was reanalyzed on 7/17/91 but surrogate recovery did not improve due to matrix effects.

TOTAL PETROLEUM HYDROCARBONS (GRAVIMETRIC) SM 503E

Analyst: T. NOHA Analysis Date: 23-JUL-91 Test: G502.7. 0

Parameter	Result	Det. Limit	Units
PETROLEUM HYDROCARBONS	150	20	mg/kg

Sample Comments

* *See Note for Parameter*
BDL Below Detection Limit
EST Estimated Value

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Lab ID
EMS HERITAGE LABORATORIES, INC. 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	15-JUL-91	C131601
	Complete 25-JUL-91	PO Number 5051.....
	Printed 26-JUL-91	Sampled 12-JUL-91 13:55

Report To	Bill To
HERITAGE REMEDIATION/ENGINEERING SCOTT MITCHELL 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441	HERITAGE REMEDIATION/ENGINEERING, INC. ANN BARBINI 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441

Sample Description

PROJECT: ROADWAY SERVICES,INC./4063
DESCRIPTION: SB-13 (13.0'-14.0')

VOLATILE ORGANICS (HEATED PURGE & TRAP) SW846-8240

Analyst: S. SHARP Analysis Date: 16-JUL-91 Instrument: GC/MS VOA Test: 0510.9. 0

Parameter	Result	Det. Limit	Units
ACETONE	BDL	49	ug/kg
ACROLEIN	BDL	120	ug/kg
ACRYLONITRILE	BDL	170	ug/kg
BENZENE	BDL	12	ug/kg
BROMODICHLOROMETHANE	BDL	12	ug/kg
BROMOFORM	BDL	12	ug/kg
BROMOMETHANE	BDL	25	ug/kg
CARBON DISULFIDE	BDL	12	ug/kg
CARBON TETRACHLORIDE	BDL	12	ug/kg
CHLOROBENZENE	BDL	12	ug/kg
CHLOROETHANE	BDL	25	ug/kg
CHLOROFORM	BDL	12	ug/kg
CHLOROMETHANE	BDL	25	ug/kg
DIBROMOCHLOROMETHANE	BDL	12	ug/kg
CIS-1,3-DICHLOROPROPENE	BDL	12	ug/kg
DICHLORODIFLUOROMETHANE	BDL	12	ug/kg
1,1-DICHLOROETHANE	BDL	12	ug/kg
1,2-DICHLOROETHANE	BDL	12	ug/kg
1,1-DICHLOROETHENE	BDL	12	ug/kg
1,2-DICHLOROPROPANE	BDL	12	ug/kg
ETHYLBENZENE	BDL	12	ug/kg
FLUOROTRICHLOROMETHANE	BDL	12	ug/kg
2-HEXANONE	BDL	25	ug/kg
METHYLENE CHLORIDE	BDL	12	ug/kg
METHYL ETHYL KETONE	BDL	25	ug/kg
4-METHYL-2-PENTANONE	BDL	25	ug/kg
STYRENE	BDL	12	ug/kg
1,1,2,2-TETRACHLOROETHANE	BDL	12	ug/kg
TETRACHLOROETHENE	BDL	12	ug/kg
TETRAHYDROFURAN	BDL	62	ug/kg
TOLUENE	BDL	12	ug/kg
1,2-DICHLOROETHENE (TOTAL)	BDL	12	ug/kg
TRANS-1,3-DICHLOROPROPENE	BDL	12	ug/kg
1,1,1-TRICHLOROETHANE	BDL	12	ug/kg

Parameter	Result	Det. Limit	Units
1,1,2-TRICHLOROETHANE	BDL	12	ug/kg
TRICHLOROETHENE	EST 11	12	ug/kg
VINYL ACETATE	BDL	25	ug/kg
VINYL CHLORIDE	BDL	25	ug/kg
XYLENE (TOTAL)	BDL	12	ug/kg
SURROGATE RECOVERY			
DICHLOROETHANE-D4	83		% Rec
TOLUENE-D8	* 137		% Rec
BROMOFLUOROBENZENE	* 66		% Rec

Sample was reanalyzed on 7/17/91 but surrogate recovery did not improve due to matrix effects.

TOTAL PETROLEUM HYDROCARBONS (GRAVIMETRIC) SM 503E

Analyst: T. NOHA Analysis Date: 23-JUL-91 Test: G502.7, 0

Parameter	Result	Det. Limit	Units
PETROLEUM HYDROCARBONS	100	20	mg/kg

Sample Comments

* *See Note for Parameter*
BDL *Below Detection Limit*
EST *Estimated Value*

Quality Assurance Officer: _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Lab ID
EMS HERITAGE LABORATORIES, INC. 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	15-JUL-91	C131602
	Complete 25-JUL-91	PO Number 5051.....
	Printed 26-JUL-91	Sampled 12-JUL-91 14:45

Report To	Bill To
HERITAGE REMEDIATION/ENGINEERING SCOTT MITCHELL 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441	HERITAGE REMEDIATION/ENGINEERING, INC. ANN BARBINI 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441

Sample Description

PROJECT: ROADWAY SERVICES,INC./4063
DESCRIPTION: SB-14 (16.5'-17.5')

VOLATILE ORGANICS (HEATED PURGE & TRAP) SW846-8240

Analyst: S. SHARP Analysis Date: 16-JUL-91 Instrument: GC/MS VOA Test: 0510.9. 0

Parameter	Result	Det. Limit	Units
ACETONE	35	28	ug/kg
ACROLEIN	BDL	70	ug/kg
ACRYLONITRILE	BDL	98	ug/kg
BENZENE	BDL	7	ug/kg
BROMODICHLOROMETHANE	BDL	7	ug/kg
BROMOFORM	BDL	7	ug/kg
BROMOMETHANE	BDL	14	ug/kg
CARBON DISULFIDE	7	7	ug/kg
CARBON TETRACHLORIDE	BDL	7	ug/kg
CHLOROBENZENE	BDL	7	ug/kg
CHLOROETHANE	BDL	14	ug/kg
CHLOROFORM	BDL	7	ug/kg
CHLOROMETHANE	BDL	14	ug/kg
DIBROMOCHLOROMETHANE	BDL	7	ug/kg
CIS-1,3-DICHLOROPROPENE	BDL	7	ug/kg
DICHLORODIFLUOROMETHANE	BDL	7	ug/kg
1,1-DICHLOROETHANE	BDL	7	ug/kg
1,2-DICHLOROETHANE	BDL	7	ug/kg
1,1-DICHLOROETHENE	BDL	7	ug/kg
1,2-DICHLOROPROPANE	BDL	7	ug/kg
ETHYLBENZENE	BDL	7	ug/kg
FLUOROTRICHLOROMETHANE	BDL	7	ug/kg
2-HEXANONE	BDL	14	ug/kg
METHYLENE CHLORIDE	BDL	7	ug/kg
METHYL ETHYL KETONE	BDL	14	ug/kg
4-METHYL-2-PENTANONE	BDL	14	ug/kg
STYRENE	BDL	7	ug/kg
1,1,2,2-TETRACHLOROETHANE	BDL	7	ug/kg
TETRACHLOROETHENE	BDL	7	ug/kg
TETRAHYDROFURAN	BDL	35	ug/kg
TOLUENE	BDL	7	ug/kg
1,2-DICHLOROETHENE (TOTAL)	BDL	7	ug/kg
TRANS-1,3-DICHLOROPROPENE	BDL	7	ug/kg
1,1,1-TRICHLOROETHANE	BDL	7	ug/kg

Parameter	Result	Det. Limit	Units
1,1,2-TRICHLOROETHANE	BDL	7	ug/kg
TRICHLOROETHENE	9	7	ug/kg
VINYL ACETATE	BDL	14	ug/kg
VINYL CHLORIDE	BDL	14	ug/kg
XYLENE (TOTAL)	BDL	7	ug/kg
.			
SURROGATE RECOVERY			
DICHLOROETHANE-D4	88		% Rec
TOLUENE-D8	* 126		% Rec
BROMOFLUOROBENZENE	* 73		% Rec

Sample was reanalyzed on 7/16/91 but surrogate recovery did not improve due to matrix effects.

TOTAL PETROLEUM HYDROCARBONS (GRAVIMETRIC) SM 503E

Analyst: T. NOHA Analysis Date: 23-JUL-91 Test: G502.7. 0

Parameter	Result	Det. Limit	Units
PETROLEUM HYDROCARBONS	300	20	mg/kg

Sample Comments

* *See Note for Parameter*
BDL Below Detection Limit

Quality Assurance Officer: Christine Sa...